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CHALMERS | GÖTEBORG UNIVERSITY

Master Thesis in Software Engineering & Management

Department of Applied Information Technology

Business-IT Strategic Alignment Concept in Theory and Practice

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Göteborg, Sweden 2008

ABSTRACT

Business-IT strategic alignment is one of the most popular modern management concepts in business and IT management particularly in academia and industry. It refers to the degree of congruence between business and IT strategies. The dramatic increase in the role of IS/IT in business and industry lately recognized as IS/IT became an inseparable part of business and industrial organizations in all sectors including government, healthcare, and education. Ensuring that IS/IT delivers a value to the business is an important issue to the CEO and IT managers in many business firms and industrial organizations today.

This master thesis provides insights into business-IT Strategic alignment concept in theory and practice, and it addresses two important issues within business-IT strategic alignment. The first is to define and clarify the concepts of strategic alignment and alignment gap between business strategy and IT strategy, and to determine the reasons and circumstances that lead to the alignment gap between business strategy and IT strategy. The second is to determine how to manage the strategic alignment based on the answer to the first question and supported by illustrative cases studies in four different business and industrial sectors. A conceptual model has been developed wherein business strategy and IT strategy coexist, and tested empirically using data from four firms in different sectors in industry. The empirical data about the four companies are presented and analyzed. Based on literature, the concepts of strategic alignment and alignment gap have been clearly identified, and the research model has been verified. The results indicate that bridging the alignment gap between business strategy and IT strategy will help organizations to achieve and sustain strategic alignment.

Keywords: strategic alignment, alignment of IT with business, business-IT strategic alignment, IT management, IS strategy, IT strategy, alignment gap

ACKNOWLEDGEMENTS

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1. INTRODUCTION

This thesis project "Master Thesis in Applied Information Technology" is a course in partial fulfillment of the requirements for a Master's degree in Applied Information Technology at IT University of Gothenburg, University of Gothenburg. The title of the subject of this thesis project is "**Business-IT Strategic Alignment Concept in Theory and Practice**". In this project I try to develop a research study in the subject of business-IT strategic alignment and to address the concepts of strategic alignment and alignment gap between business strategy and IT strategy. The goal of this thesis is to identify and define the concepts of strategic alignment and alignment gap, and to find out how to handle strategic alignment issues. This is an approach to develop a broad knowledge and a deep understanding of the concept strategic alignment between business strategy and IS/IT strategy.

1.1 Background and context

From 1960s and onwards, information systems (IS) and information technology (IT) have characterized with the rapid development, and emerged in business and become essential parts of most business firms and industrial organizations. Most organizations in all sectors of industry, business and commerce, government and academia and healthcare in the modern world are fundamentally dependent on their information systems and information technology (IS/IT) [Earl, 1992; Ward and Peppard, 2002; Peppard and Ward, 2004]. For organizations to stay competitive in a dynamic business environment, they have to determine and understand how to manage IS/IT strategically. A key success factor for a successful business in such a dynamic business environment is an effective and efficient information technology strategy supporting business strategies and processes [Henderson and Venkatraman, 1993]. The importance of the strategic use of technology based IS/IT for effective organizational performance that makes a contribution to the creation of business value is addressed and well recognized [Henderson and Venkatraman, 1993; Luftman et al., 1993]. The alignment between the business strategy and the strategic choices of IS/IT deployment are therefore a prominent area of concern that stays on a high priority business IT issues that business and IT management struggle with [Silvius, 2007; Kefi and Kalika, 2005; Ward and Peppard, 2002].

The business strategic alignment with IS/IT is considered to be a very important issue, particularly when IS/IT becomes an essential part of the business and are used to leverage special business competencies, merge companies, restructure industries, and facilitate global competition [Earl, 1992; Silvius, 2007; Chan et al., 1997; Peppard and Ward, 2004; Sabherwal and Chan, 2001]. IS/IT is integrally part of most forms of business and industrial organizations. It became obviously true that the role and impact of IS/IT in business and industries has significantly changed over the last decade [Peppard and Ward, 2004]. With the emergence of IS/IT in business, businesses everywhere are undergoing rapid and significant change, and across a wide range of business markets, IS/IT is obviously rising above its traditional 'back office' role and is evolving towards a 'strategic' role with the potential not only to support chosen business strategies, but also to shape new business strategies [Luftman et al. 1993; Henderson and Venkatraman, 1993]. As argued by Henderson and Venkatraman for more than a decade ago, that yet, there is increasing concern that the anticipated value of the investment in IS/IT is not being achieved. How do we reconcile the dramatic increase in the role of the IS/IT

in organizations and markets with evidence of minimal productivity gains at an aggregate level of the economy? [Henderson and Venkatraman, 1993]

As addressed in a research study by Jerry Luftman in 2004; that for over 20 years, business-IT strategic alignment is ranked as a top management concern where business and IT executives are continually looking for best management practices to help them align their business and IT strategies. Strategic alignment seems to grow in importance as business organizations attempt to link business and IT due to dynamic business strategies and continuously evolving technologies at a rapid pace [Luftman, 2005], which supports the need to explore it further. This research project presents the strategic alignment model, and the strategic alignment and alignment gap between business strategy and IT strategy in general and practically focuses on how to manage the business-IT strategic alignment in particular for organizations to achieve competitive advantages and success in business.

1.2 Purpose

The purpose of this thesis project is basically to address and understand the concept and theory of business-IT strategic alignment. It seeks to contribute to the literature in business strategy and IT management by pursuing two specific goals. First, it aims to provide further insights into the concept of strategic alignment between business strategy and IT strategy. It attempts to elaborate so in light of prior studies in business-IT strategic alignment by different scholars that they presented different definitions and meanings to the concept of strategic alignment based on different perspectives. Second, it identifies the concept of alignment gap between business strategy and IT strategy, which is the issue that represented the obstacle to achieve strategic alignment, and to find out how can organizations manage business-IT strategic alignment by minimizing or bridging the alignment gap between business strategy and IT strategy.

1.3 Scope

This thesis project focuses on business-IT strategic alignment and aims to present a general study of the strategic alignment model and to address the concepts strategic alignment and alignment gap, and further to determine how can organizations manage the strategic alignment of the business strategy and the IT strategy of the external component of the Strategic Alignment Model (SAM) developed by John C. Henderson and N. Venkatraman as presented in the references [Henderson and Venkatraman, 1991 & 1993; Luftman et al., 1993].

1.4 Research questions/problem statement

Based on the purpose of this research project, where I try to address how can organizations manage the strategic alignment between business strategy and IT strategy, the following research questions are formulated:

- *What are the definitions of strategic alignment and alignment gap between business and IT strategies?*

- *What are the reasons that put forward in literature for the alignment gap between business and IT strategies*?

- *How can organizations manage Business-IT strategic alignment*?

1.5 Research study design/approach

A qualitative research approach was followed in this research study based on an intensive literature study, and empirically supported with empirical case examples to identify the practical approach of business-IT strategic alignment. The empirical data in this project developed in two parts. The first part was drawn from a literature to research studies that have been conducted by different scholars in strategic alignment. The second part was conducted by contacting two companies to develop the second two case studies. Basically the research model of the business-IT strategic alignment consists of four components that are represented in business strategy, IT strategy, organizational infrastructure and processes, and IS/IT infrastructure and processes. However, the research study approach in this work concentrated on the strategic alignment of the external components that are represented in the business strategy and IT strategy, and the research study tried to find out the suitable way of how can organizations manage the strategic alignment between the business strategy and IT strategy components.

1.6 Document outline

This research report is initiated with this introduction chapter that presented a short overview of the research subject of strategic alignment, presenting the background, the purpose and scope, research questions, and research study design. Chapter two addresses the research methodology and approach. Chapter three presents the background theory and concepts, and the general framework of business-IT strategic alignment. Chapter four introduces the research model of the project. Chapter five presents four case studies of business-IT strategic alignment from real cases, and chapter six presents the research discussion and conclusions.

2. RESEARCH APPROACH AND METHODOLOGY

This chapter presents a brief description of how the work in this thesis was carried out. It presents the research process and practical approach in developing this thesis project, which are represented in the research approach, research design, and the systematic approach of literature review, data collection techniques, and the empirical study.

2.1 Research Approach

Academic researchers classify research methods into quantitative and qualitative research methods which are tools of the researcher's trade. Quantitative research is usually liked the process of gathering and analyzing measurable data to establish quantitative relationships among variables. Qualitative research refers to an in-depth research process that seeks insights through loosely structured data to provide detailed in-depth results and data [Collis and Hussey, 2003; Hyde, 2000; Punch, 2005; and Crewell, 2004].

The two general research approaches to reasoning that may lead to the acquisition of new knowledge as presented by Kenneth F. Hyde are represented in inductive and deductive research approaches which are most often associated with the qualitative and quantitative research methods [Collis and Hussey, 2003; and Hyde, 2000].

- *Inductive research approach* is a study in which the theory is developed from observation of empirical reality. It is a theory building process that starts by making observations of specific instances which usually seeks to develop a new hypothesis or establish generalizations about a phenomenon under investigation. Inductive research is referred to moving from the specific to the general [Collis and Hussey, 2003; and Hyde, 2000].
- *Deductive research approach* (sometimes labeled 'conventional' empirical research) refers to a study in which a conceptual and theoretical structure is developed and then tested by empirical observation. It is a theory testing process which commences with an established theory or generalization using facts, definitions, and accepted properties, and seeks to see if the theory applies to specific instances, usually by trying to provide evidence for or against a pre-specified hypothesis to that specific instance. Deductive research is referred to as moving from the general to the particular [Collis, and Hussey, 2003; and Hyde, 2000].

The research approach followed in this thesis is a deductive research approach, where the literature of the field to the fullest coverage possible was read. Based on this, the theoretical framework of the thesis was synthesized. From this, a conceptual structure was developed which was then tested by the empirical observations.

2.2 Research Design

Initially, a researcher has to determine the type of research; exploratory, confirmatory, descriptive, or explanatory to be conducted in his/her research study. Exploratory research refers to the research process that researcher seeks to learn more about a topic or a problem, which is usually undertaken to collect data for designing a descriptive or explanatory investigation. Confirmatory research refers to the research process when a re-

searcher seeks to support (confirm) a pre-specified assumption or theory. Explanatory research refers to explain or make clear understanding about a certain phenomenon, or why a relationship exists for instance. Descriptive research refers the research type that investigates and provides a precise description about a certain issue or phenomenon such as a business performance or market share and competitive activities for a business firm [Collis and Hussey, 2003; Ghauri and Gronhaug, 2005].

The research design of this thesis is commenced with an exploratory research process followed up with a deductive research process in strategic alignment between business strategy and IT strategy with the purpose to broaden and deepen my knowledge and understanding to the concepts of strategic alignment and alignment gap between business strategy and IT strategy, determine the reasons behind the alignment gap, and to figure out how to manage the strategic alignment in order to help business organizations achieve competitive advantage.

2.3 Method and Data Collection

In trying to determine the reasons put forward in literature for the alignment gap between business strategy and IT strategy, an intensive literature study has been developed. In order to address how can organizations manage the strategic alignment between business strategy and IT strategy, two different types of empirical data studies have been conducted. The first type included two case studies collected and developed from literature about two American firms. The second type included two case studies about global American and European firms, where a qualitative research involves the use of qualitative data through using questionnaire and interviews as methods of data collection. Two questionnaires have been sent to the respondents and personal contacts through the phone and interviews have been conducted as well as through e-mail to have clear understanding, obtain the right answers, and present the information in the most proper way that fit the needs and purpose of the thesis.

The first two cases that developed from literature were about McGraw-Hill Inc. and Charles Schwab Corporation, and basically developed and gathered from a previous work mainly by Henderson and Venkatraman [Henderson and Venkatraman, 1993]; Luftamn, Lewis, and Odlach [Luftman et al., 1993]; Luftman, Papp, and Brier [Luftman, Papp, and Brier., 1999]; and Luftamn and Brier [Luftman and Brier, 1999]. The study in these two cases used a secondary data analysis which helped me to find the information to understand my research problem and solve my research question. The most important advantage with secondary data in these two cases was that helped me to save my time, where I began analysis soon and without financial costs. Secondary data has a disadvantage in some cases, however. It provides information that might have been collected for a different purpose; the reporting might have been flawed, the data could be obsolete, and there may be problems integrating data from different sources [Punch, 2005; Ghauri and Gronhaug, 2005; Watson et al., 1997]. Nevertheless, the secondary data analysis that I used in the developed two cases of McGraw-Hill Inc. and Charles Schwab Corporation is appropriate, and my challenge lies on the ways of managing the data to answer my research questions.

The other cases were developed by sending questionnaires to three respondents, where I had a plan to develop five or six case examples or studies in this thesis project One questionnaire was sent to a college professor and an experienced consultant in business

and IT management to develop three case examples about three different European Nordic firms. Another two questionnaires were sent to two employees in two different firms in industry, a US IT service firm and a European manufacturing firm. However, I have only succeeded to develop two cases that included the US IT service firm and the European manufacturing firm. These three different cases were developed in the following way:

- The case of the European Nordic firms: In this case as I mentioned that I had the plan to develop three case studies about three industrial firms in Nordic countries in Europe, where I sent a questionnaire to my respondent by e-mail. My respondent in this is a college professor and business and IT management consultant. However, due to the time limitation of my respondent where he was busy with many other issues in business and teaching in universities, I couldn't get a written response to my questionnaire from him. I had the chance to meet him personally here at the IT University of Gothenburg, and I had open interview and discussion with him where he provided me a brief introduction about the firms which they supposed to be studied and developed as case examples in my master thesis. The open interview and discussion were scheduled to last from three to four hours, but our discussion lasted two hours due to his time limitations. Unfortunately, we could not go through my questions (that I sent to him previously in my questionnaire) as I had planned to do that during the interview with him here at IT University of Gothenburg. Therefore, I didn't succeed to develop these three case examples properly as I planed to be matched to the proposed framework of discussion of the case examples to be used in the empirical data chapter. Nevertheless, the discussion with my interviewee of the college professor helped me very much to gain experience and gave me the knowledge to support the discussion in the other cases that have been developed in this master thesis.
- The case of the US IT service firm: In this case, a questionnaire has been sent to my respondent by e-mail. After one week I obtained a written response. The data was collected with answering the questionnaire and through semi-structured interview by phone. A clarification and confirmation were attained by several contacts through the phone and e-mail. I also used the websites of the firm and its vendors and business partners as a good source of information to help me develop my discussion about this case. The time that I had for the interview and discussion as well as the other phone contacts for clarification and confirmation last less than an hour in total.
- The case of the European manufacturing firm: In this case, a questionnaire has been sent to my respondent by e-mail. But I couldn't get any written response about this case, where my respondent preferred to have a contact with him by phone and go through the questions as he suggested. The data was collected through semi-structured interview that included the core questions that I sent to him in the questionnaire. My discussion with my respondent in this case was general, and I couldn't obtain more or deep information as I developed with the case study of US IT service firm. I used the web sites of the firm and its vendors to help me develop my discussion in this case as well. The time that I had for the interview and discussion as well as the other phone contacts for clarification and confirmation last about an hour in total.

Therefore, the case studies that developed from industry consisted of two cases only, the US IT service firm and the European manufacturing firm. The European Nordic case examples, as I mentioned previously, were canceled due to the fact that the information and data that I obtained about that cases weren't complete enough to develop case stud-

ies. This decision has been taken with an agreement with my respondent and my supervisor, because my respondent was very busy and his time was limited during my work in this thesis, and I am restricted to time limitation in this master thesis. The results of the questionnaires and interviews of the US IT service firm and the European manufacturing firm were analyzed and checked for consistency with feedback from the respondents and interviewees, as well as from the websites of the firms and their vendors to provide clarification and confirmation about the presented information.

2.4 Literature Review

An extensive literature study concerning the business-IT strategic alignment had been carried out before writing this master thesis. In fact, in this thesis project, I surveyed about 300 journal articles and conference papers, and about 25 reference books. However, from these about 66 reference papers and books, and 7 references on the internet, were chosen to be a part of the actual thesis. The other journal articles and conference papers as well as books helped me to deepen and elaborate my knowledge, and enhance my learning process and writing skills in developing this master thesis.

The empirical work in this thesis was preceded by a survey study in literature review about business-IT strategic alignment to get a general view of the subject and insight, and account of what has been published on this subject by accredited scholars and researchers. This helped me to clarify the relation of this topic and research aims to significant literature (and recent) research in strategic alignment between business strategy and IT strategy, and I have to make a qualitative judgments concerning the literature in business-IT strategic alignment.

A literature review has been initiated with a reiteration of the purpose of the research study. This was followed by a preview of what is to come in the literature review. It laid out the overall organization of specific topics in business-IT strategic alignment that I covered in this research work.

The purpose of the literature review in this research work was to gather an overview of the research area of strategic alignment in general, and concisely demonstrate my level of understanding to the concept and theory of the strategic alignment between business strategy and IT strategy philosophy related to my research project. I could not discuss all of literature in-depth. Rather I grouped my literature review according to some general topics in my research area and I discussed specific studies in business-IT strategic alignment conducted by accredited scholars and researchers. I included some in-depth reviews with mini-review of studies to the work presented by Venkatraman [Venkatraman, 1989], Henderson and Venkatraman [Henderson and Venkatraman, 1991 & 1993], Luftman, Lewis, and Odlach [Luftman et al., 1993], and Ward and Peppard [Ward and Peppard, 1999 & 2002].

In terms of a literature review, the 'literature' means the works I referred and consulted in order to understand and investigate my research problem. As the work in this thesis is based on an intensive literature study, literature review represents a systematic review of what has been published on the business-IT strategic alignment by accredited scholars and researchers. Literature review represented a vital part in my work to build the body of knowledge of this thesis project. The systematic approach that has been used in this master thesis project for the literature review in business-IT strategic alignment to build

the body of knowledge of the thesis is a proposed framework follows the systematic data processing that included three major stages: [*Input*] – [*Processing*] – [*Output*] [Levy and Ellis, 2006]. The *input* stage includes literature gathering and screening ways to find applicable literature, qualifying the literature, ways to read research literature, and how to know that one is done with the literature search. The *processing* stage includes sequential steps of activities that consist of sequential steps to collect, know, comprehend, apply, analyze, synthesize, and evaluate quality literature in order to provide a firm foundation to a topic and research method [Levy and Ellis, 2006; Krathwohl, 2002; Leach, 2007]. These sequential steps are known as Bloom's Taxonomy which is a classification of thinking that identifies six types of knowledge organized by the level of complexity: Knowledge, comprehension, application, analysis, synthesis, and evaluation. This taxonomy was proposed in 1956 by Benjamin Bloom, an educational psychologist at the University of Chicago in the USA [Krathwohl, 2002; Leach, 2007]. Finally, the *output* (writing the literature review) should demonstrate that the proposed research contributions something new to overall body of knowledge [Levy and Ellis, 2006].

Basically I managed to follow this approach and wrote a reasonable and valuable literature review about business-IT strategic alignment to demonstrate my awareness of significant similar or relevant research in business-IT strategic alignment where I noticed the different ways that had been followed by different scholars. The literature review is an expanding process that subjects to changes and improvements during the research work and will continue to expand and update as the research progresses where I could locate new publications in the literature review of this master thesis based on the progress and work needs to elaborate and enhance my presentation to the body of knowledge of the research topic during the work process [Levy and Ellis, 2006; Punch, 2005; Crewell, 2004]. Although literature review is a very high professional academic research process, it is not an easy work to be done within this short time for this master thesis. Nevertheless, it was a very good experience as a learning process and knowledge development to broaden and deepen my knowledge in business strategy, IT strategy, and business-IT strategic alignment.

Library Catalogue and Databases: I used Chalmers Library and Gothenburg University Library catalogues to find books on performing the literature review. The databases used in this thesis were Scientific Direct, Engineering Village and Emerald Library, Harvard Business Review, MIT Sloan Management Review, Wiley Interscience, Academic, and many other sources are available at the e-journals through the electronic sources of Chalmers Library [http://www.lib.chalmers.se/]. I used Business Source Premier Database of Gothenburg University Library [http://www.ub.gu.se]. These helped me to locate earlier journal articles, conference papers, and proceedings using the keyword terms, title, or author/s of the research topic of my thesis project, as I may find a good quality literature review which I can then update.

Books, and articles and papers: Due to the fact that I have a great interest to study and learn in general, and my eagerness to develop a very good work in this thesis in particular, I surveyed tremendous amounts of literature in business management and IT management to develop this master thesis. These included books, journal articles, conference papers, as well as online encyclopedias, and some of the web sites of the business and industrial firms. The books represent one of the good sources of information in this work; however, they don't give updated and specific information. The more specific and

up-to-date information were mainly determined from journal articles and conference papers. These articles and conference papers usually provide a preliminary review of the literature, as well as a clear explanation of the purpose of the research, how authors went about it and their reporting process, together with summary of the results and conclusions. One of the great advantages of using journal articles and conference papers, they provide updated information and a more contemporary data source than the book, as journal and conference are usually published several times a year. However, they may not provide the most up-to-date view due to the lengthy referring process adopted by many journals [Collis and Hussey, 2003].

2.5 Empirical study

Empirical-based study is a central term in scientific research in general and in business and IS/IT management in particular, where theory needs to be backed up with solid empirical evidence. It is based on experience or observation rather than reasoning. The empirical research is a class of research in which empirical evidence, observation, or data are collected from real-world observations in order to answer a particular research question or to test a hypothesis (about certain phenomenon). It involves the scientific use of quantitative empirical data and/or qualitative empirical data that offer deep analysis to understand and interpret the output result of the research [Punch, 2005; Ghauri and Gronhaug, 2005; Yin, 2003].

As I mentioned previously, a qualitative research approach is used as a research method in this thesis project. The most common qualitative methods are case study and action research. Case study refers to a research strategy which focuses on the in-depth, holistic and in-context study of one or more cases; which typically use multiple sources of data. It is often associated with a descriptive or an exploratory research. Action research refers to a research strategy that uses empirical procedures, in iterative cycles of action and research, to solve a practical problem [Punch, 2005; Ghauri and Gronhaug, 2005; Yin, 2003].

The qualitative empirical study used in this project consists of four illustrative case studies. It concentrated on the business-IT strategic alignment that included business strategy and IT strategy disciplines in four different industries. The study investigated four case studies that included two types of empirical studies using multiple data source surveying to determine the validity and reliability of the research model in this thesis project. In these case studies, observation carried out in real world settings that included four different firms in four different industries. This helped me to get in real situations and gain a holistic understanding of the business management, IT management, and business-IT activities in four different firms in their natural settings. Moreover, that offered me the opportunity to gain an in-depth understanding of how business-IT strategic alignment has been achieved in the firms under study.

The first step in collecting empirical data was to find the suitable firms that could provide me with the required information that fit my research framework of discussion. One of the most important issues that I had to find was that the targeted firms for the empirical study use IS/IT to run their business, or their IS/IT has an important role in business. As a matter of fact I had a hard difficulty to find cooperative firms to help me develop my study more efficiently as I had planned. That pushed me to refer to literature, and search for empirical data from literature, where I gathered two case studies that

fit my research framework. The other two cases from industry came by the help of my teachers in IT Management; where I managed to get some help to develop the two case studies, the US IT service firm and the European manufacturing firm.

Therefore, in a brief description, the primary source of information of the empirical study in this thesis was the explorative four case studies based on qualitative analysis about business-IT strategic alignment to determine how the organizations under study did/do manage to bridge the alignment gap between business strategy and IT strategy to achieve the strategic alignment and gain a competitive advantage. The project used a qualitative methodology. The four companies that have been used in the empirical study in this thesis are:

- **McGraw-Hill Inc.**

  The McGraw-Hill Companies, Inc., headquartered in New York City in the USA and incorporated in December 1925, is a global information services provider serving the financial services, education and business information markets. Other markets include energy, construction, aerospace and defense, and marketing information services. The Company serves its customers through a range of distribution channels, including printed books, magazines and newsletters, online via Internet Websites and digital platforms, through wireless and traditional on-air broadcasting, and through a variety of conferences and trade shows. Its operations consist of three business segments: McGraw-Hill Education, Financial Services, and Information & Media [McGraw-Hill]. McGraw Hill education, in printing and publishing industry, is the part that has been dealt with in this thesis. This case study has been developed from literature, and presented with the details as it has been presented in literature.

- **Charles Schwab Corporation Inc.**

  The Charles Schwab Corporation is a discount broker firm headquartered in San Francisco, California, in the USA, and it has been established since 1970s. The Company offers a range of products to address its clients' investment and financial needs. These product offerings include brokerage, banking and mutual funds [Charles Schwab]. The case study of Charles Schwab Corporation is developed from literature and presented with the details as it has been presented in literature.

- **Global Information Technology Service Provider (GITSP) Inc.**

  GITSP Inc. stands for Global Information Technology Service Provider. GITSP is a given name to the US IT Service firm used in this master thesis without presenting any details or information that reveals the identity of the firm based on an agreement with the interviewee from the firm for confidential considerations. GITSP was established in the end of 1950s, and headquartered USA. It is a global IT service firm that offers IT and business process outsourcing, and IT and professional services.

- **European Global Manufacturing (EUGM) Inc.**

  EUGM Inc. stands for European Global Manufacturing. EUGM is a given name to the European manufacturing firm used in this master thesis without presenting any details or information that reveals the identity of the firm based on an agreement with

the interviewee from the firm for confidential considerations. EUGM was established for more than 100 years ago, and headquartered EU. It supplies products, customer solutions and services in areas of rolling bearings, seals, services, and lubrication systems.

2.6 Brief summary

The aim with this chapter was to show how the work in this thesis is organized. This chapter has sought to show the readers the research approach and methodology that have been used. It presented how I used a systematic process in developing this master thesis by using the existing theory of research process and methods, which helped me to take advantage of existing knowledge in literature and gain the experience in developing the research process. It showed that the qualitative research method that I used in this thesis is classified as an exploratory to develop the theory part followed up with a deductive research process to develop the empirical study. In a brief description it presented the systematic approach that I used in the literature review that helped to develop the body of knowledge of the thesis project. The study presented how I developed the empirical data by presenting the data collection techniques that I used in this work.

The next chapter presents the basic concepts and theory of business-IT strategic alignment, which represents the body of knowledge of the research subject in this master thesis.

3. BASIC CONCEPTS AND THEORETICAL BACKGROUND

This chapter briefly presents a description of the basic concepts of IS and IT and IT management strategies, and how they are related to each others as they constitute the general interrelated terms of this thesis project. Three frameworks will be used in this chapter; a framework developed by Michael J. Earl and a framework developed by Robert D. Galliers, which are general models that present the interrelationships of the IS/IT components. The third framework is business-IT strategic alignment model developed by John Henderson and N. Venkatraman, which is a specific model that shows the interrelationships of business strategy and IT strategy and their corresponding organizational and IS/IT infrastructures and processes. The chapter presents the basic concepts and theoretical background of strategic alignment such as *strategic alignment* and *alignment gap* which represent the specific components and concepts that constitute the essence of business-IT strategic alignment theory of this thesis project. In a brief description, it also presents the Strategic Alignment Model (SAM) and its different four components, and strategic alignment perspectives.

3.1 Information Systems (IS) and Information Technology (IT)

IS and IT are two terms that are often used interchangeably and are indispensable to the business operation of most modern organizations. IS existed and used in organizations to manage business long before the advent of IT [Ward and Peppard, 2002], and most IS were exclusively data-oriented with the primary purpose to store, retrieve, manipulate, and display data [Andriole, 2002]. IS can be defined as a system that includes persons and data records and management activities for managing and processing information, usually computer-based data processing system (computer-based information systems).

IS refers to the systems that include computer hardware, software, and people and management policies and procedures, and that systems use the IT to store, manage, and process information which often relies on databases. The UK Academy of Information Systems (UKAIS) defines information systems, whether automated or manual as the means by which people and organizations, utilizing technology, collect and process, store and disseminate information to complete business tasks. IS involves the planning, analysis, design and maintenance of computer-based information systems used to process information. It is, therefore, an organized structure of interrelated components that concerned with the purposeful utilization of information technology [Ward and Peppard, 2002].

IT is an engineering term has been defined as – "IT refers to a wide variety of items and abilities used in the creation, storage, and dispersal of data and information as well as in the creation of knowledge. Data are raw facts, figures, and details. Information refers to an organized, meaningful, and useful interpretation of data, while knowledge is the awareness and understanding of a set of information and how that information can be put to the best use" [Senn, 2004]. It is an engineering discipline that refers specifically to modern technology, essentially computer-based hardware and software systems, telecommunications networks, database management, and other information processing technologies and know-how used in computer-based information systems to create or enable the acquisition, representation, storage, transmission, and manage and use of information [Ward and Peppard, 2002; Sage, 2002].

3.2 Strategy

The concept of strategy has been widely used in management research and literature, and a number of definitions of this concept have been presented by different scholars and researchers both in military and business management disciplines. In fact, there is no absolute consensus or single universally accepted definition of strategy. Various authors and managers use the concept differently that might include other related terms such as goals and objectives as part of strategy, whereas others make firm distinctions between them [Mintzberg et al. 2003].

In a basic and simple definition, strategy is a management (planning) concept that is defined as an elaborated and systematic long term plan of action designed to achieve the basic long-term objectives or a particular goal of an organization or an enterprise. It is a pattern or a plan that integrates an organization's major goals, policies, and action sequences forming up a cohesive whole [Mintzberg et al. 2003]. Strategy is the determination of the steps required to reach an objective that makes the best use of available resources. It is a top management duty that is of a great importance to the organization. The strategy is therefore constrained to the business nature of the organization, including its resources, capabilities, culture, structure, etc., and the business environment within which it operates. It constructs a framework that consists of an integrated set of actions aimed at increasing the long-term well-being and strength of the organization relative to competitors, which helps to ensure that the organization makes the best use of what it has to work with and adequately compensates for its limitations [Robson, 1997; Ward and Peppard, 2002]. The concept of strategy has been borrowed from military and adapted for use in business to achieve the firm's short term objectives and long term plans [Mintzberg, 1987; Sadler, 2003].

Strategy is a very interesting and a complex discipline. It is a wide subject has been defined and interpreted by different scholars and authors in different perspectives. According to Henry Mintizberg, five definitions of strategy are presented, *strategy as plan* – which refers to some sort of consciously intended course of actions, a set of guidelines to deal with a situation; *strategy as ploy* – which refers to specific maneuver intended to outwit an opponent or competitor; *strategy as pattern* – which refers to specifically, a pattern in a stream of actions; *strategy as position* – specifically, a means of locating an organization in a dynamic business environment, where strategy becomes the mediating force between the organization and its business environment, that is, between internal and external context; and *strategy as perspective* – which refers to deeply and thoroughly worked way of perceiving the world [Mintzberg et al. 2003]. According to Michael Porter, strategy is defined as "Strategy is the creating fit among a company's activities. The success of a strategy depends on doing many things will – not just a few – and integrating among them. If there is no fit among activities, there is no distinctive strategy and little sustainability. Management reverts to the simpler task of overseeing independent functions, and operational effectiveness determines an organization's relative performance" [Porter, 1996].

Strategy is a vigorous and fresh discipline, with much of its research materials derived from studies in 1960s, where the roots of those studies go back further. Modern studies in strategy can be divided into four schools of thought – Planning and Practice, Learning, Positioning, and Resource-Based, each with long scholastic and practical traditions. These schools of thought are not mutually exclusive nor do they cover all the contributions to the field of strategy. But they are a useful way of identifying the pathways to the

present so that a clearer view can be formed of potential strategy futures [McKiernan, 1997]. Therefore, we can find that the concept of strategy has been elaborated and evolved to a more complex socio-dynamical process that influence the organization with its business environment, where it was restricted to planning and decision making process, a view which is still an important step in strategic management art and science. In a modern era, strategy has been split to strategy formulation, implementation, and evaluation to the cross-functional decisions that help an organization to achieve its business objectives, where it became strongly concerned with coupling the organization with its business environment. This environment 'fit' shaped the main principle of modern analytical approaches to strategy formulation. It emphasized four components that included (1) Market opportunity (what the firm might do); (2) Corporate competence (what the firm could do); (3) Ambition (what the firm want to do); and (4) Social responsibility (what the firm should do). Therefore, with these four components strategy decision dealt with the 'fit' between the external (1 & 4) and internal (2 &3) environments [McKiernan, 1997]. This perspective offers a clear view to connecting and integrating the organization with its dynamic business environment, where strategy can be seen as both a process (strategic process) and position (strategic position), a view that agrees with the same views of Henry Mintzberg and Michael Porter on the concept of strategy presented previously in this section.

The definition of strategy that is considered to be suitable and used in this thesis project includes corporate strategy and business strategy or competitive strategy as they represent the main influences on IS strategy. Corporate strategy deals with the overall strategic purpose and directions of the firm. It refers to the firm's choice of business, market and the future directions and performance, and therefore it defines the overall business scope and directions [Earl, 1989; Sadler, 2003]. Business strategy or competitive strategy as defined by Michael Porter: "Strategy is a broad based formula for how business is going to compete, what its goals should be, and what policies will be needed to carry out those goals. The essence of formulating competitive strategy is relating a company to its environment" [Robson, 1997]. It refers to the product-market analysis and plans which each strategic unit formulates in pursuit of its mission given by the corporate strategy. Business strategy deals with the achievement of a sustainable competitive advantage in a specific market [Earl, 1989; Sadler, 2003].

3.3 IS Strategy

The IS strategy is concerned mainly with aligning IS development with business needs and with trying to gain a strategic advantage through the proper using of IT in the firm [Earl, 1989]. It is a planning process for the development of systems towards some future vision of the role of information systems in the organization. IS strategy defines the organization's demand for IS/IT – the requirements or 'demand' for information and systems to support the overall business strategy. It brings together the business aims of the organization, a clear understanding of the information needed to support those aims, and the implementation of computer systems to provide that information. IS strategy is firmly grounded in the business, taking into consideration both the competitive impact and alignment requirements of IS/IT. Basically, IS strategy defines and prioritizes the investments required to achieve the 'ideal' application portfolio, the nature of the benefits expected and the changes required to deliver those benefits, within the constraints of resources and systems interdependencies [Allen, 1995; Ward and Peppard, 2002].

A good approach to present the general components of IS strategy and the interrelationships of these components to conceptualize how IS fits into an organization is to present them in a framework or model. This will help business and IT practitioners in exploiting IT efficiently for strategic advantage [Earl, 1989]. Different conceptual frameworks developed by different scholars and researchers in business and IS/IT that present the interrelationships between business, IS, and IT strategies. Among these frameworks, for instance, the three levels of strategy in IS/IT presented in Figure (1) [Earl, 1989] and an IS strategy components presented in Figure (2) [Galliers, 1993]. These frameworks are almost similar with minor differences in the contents of their elements or the name of the components, and how these components are organized in each framework. The framework of the three level of strategy of IS/IT, developed by Michael J. Earl, consists of three domains that are represented in *IS strategy*, *IT strategy*, and *Information Management (IM) strategy* as depicted in Figure (1), and each domain has its components. This model was much more explicit about the responsibilities for each domain, subtly, but significantly, suggesting a different balance between the IS function and general management in each domain [Earl, 1989 & 1998].
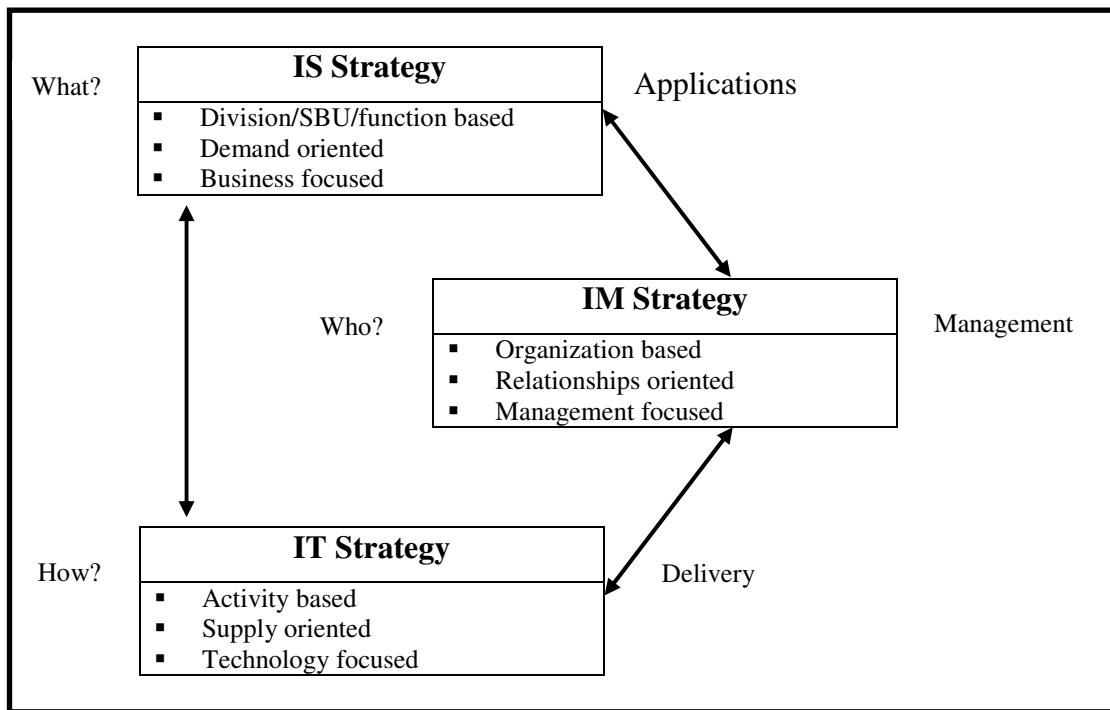
Figure (1) Three levels of strategy in IS/IT [Earl, 1989]

The framework of the information system strategy developed by Robert D. Galliers [Galliers, 1993] is also appropriate to be used here in this master thesis to give a general idea and a clear understanding about the interrelated general components of IS strategy, where it contains the concept of change management, which is an important issue in business and IT. The framework consists of interacting components that connect to create the IS strategy has proved valuable in understanding to the organizational hierarchy of the IS strategy interrelated components and their relationship with the business strategy. These components are represented in: *information strategy*, *IT strategy*, *information management strategy*, and *change management / implementation strategy* as illustrated in Figure (2). This framework shows the central role that information strategy

plays in linking business and information systems strategy processes. It illustrates the core line of business-related strategies and the interrelationships between the components of IS strategy. The business strategy of the organization is located in a business environment, where the business environment refers to the political, economic, social and technological, economic forces that are not in the control of the business and will have an impact on the business function [Galliers, 1993].

It can be noticed that, based on Galliers's view in his conceptual framework of IS strategy as presented in Figure (2), the technological issues, addressed by the IT strategy, and the infrastructure issues, addressed by the IT Management strategy, are secondary to the core business strategies. When this multiple nature is identified it demands a variety of planning approaches [Galliers, 1993; Robson, 1997].
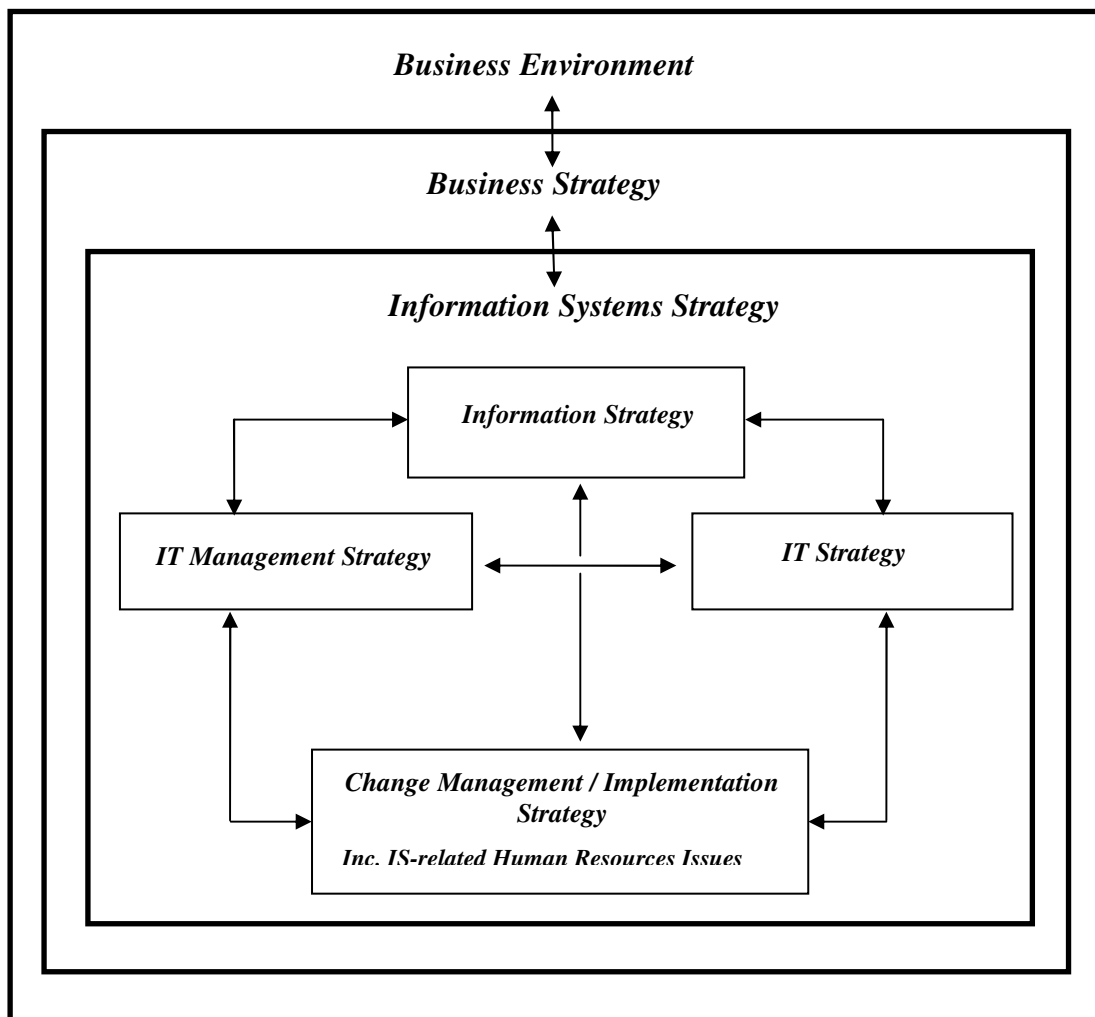
Figure (2) Information System Strategy Components [Galliers, 1993]

3.3.1 Information strategy

Information strategy as defined by IT University of Oxford – is "a set of attitudes in which: any information that should be available for sharing is well defined and appropriately accessible (allowing for necessary safeguards); the quality of information is fit for its purpose (e.g. accuracy, currency, consistency, completeness; all staff know, and

exercise, their responsibilities towards information; there is a mechanism by which priorities are clearly identified and then acted upon" [ICT – University of Oxford].

The information strategy of an organization is a set of principles that acts as central cohesive source of support and stability between the business strategy and IS strategy [Galliers, 1993; Allen, 1995]. It defines the attitudes of that organization towards information and process by which it is required, manipulated and stored. Information strategy describes the priorities of development that will guide the organization to support its current and future requirements for information [UCL Information Strategy]. The key objectives of the information strategy are to ensure information-gathering across the organization is carried out in the most effective way to improve business performance [Galliers, 1993; ICT –University of Oxford; UCL Information Strategy].

3.3.2 IT Strategy

IT strategy is concerned mainly with technology policies, and outlining the vision of how the organization's demand for information and systems will be supported by technology – essentially; it is concerned with 'IT supply' [Earl, 1989]. It addresses the provision of IT capabilities and resources (including hardware, software and telecommunications) and services such as IT operations, systems developments and user support [Ward and Peppard, 2002]. Basically, IT strategy is concerned with preferred methods, security level, mandated systems, the applications and platforms, the practical facts about how to provide the information [Earl, 1989]. Thus it concerns with the technological infrastructure necessary to fulfill the requirements of the information strategy, and provides the framework within which the specialists offer IT applications and users use them [Earl, 1989; Allen, 1995].

3.3.3 IT Management Strategy

IT and IM have a profound effect on an organization's strategic position because they fundamentally change both the mechanism of adding value and driving forces of industrial competition [Picot, 1989]. An important aspect of IT management is the question of how IS and IT can support the business strategy and the business goals. IT management is a discipline that includes managing people and business-IT processes. It is a management for the entire spectrum of technologies for information processing, including software, hardware, communications technologies and related services. The IT management strategy is primarily concerned with the role and structure of IT activities in the firm [Earl, 1989]. It embodies policies, organizational provisions, management control for IT, management responsibilities, performance measurements and management processes, and a comprehensive set of activities associated with developing and managing the information resource. IT management strategy focuses on relationships between the specialist and users and between the center and divisions or business units [Earl, 1989; Ward and Peppard, 2002] In order to develop an overall organizational capability to exploit IS/IT effectively over an extended period, further aspects of IS/IT require coherent and consistent strategic management. IT management strategy is concerned with how information services are organized for a different facet or aspect of the organization (i.e., centralized, distributed, out-sourced) and policy issues as who get access and what level of access they receive [Allen, 1995; Ward and Peppard, 2002]. The relationship between the component of IS Strategy, IT strategy and IT management strategy as well as with change management/ implementation strategy is depicted in Figure (2) [Galliers, 1993].

3.3.4 Change Management / Implementation strategy

IS/IT is always changing and the rate of technological change, due to the continuous rapid and advanced progress in IS and IT, demands that organizations keep up to date with technology developments [Earl, 1992; Ward and Peppard, 1996], and as business strategies change, IT strategies and processes must keep pace [Henderson and Venkatraman, 1993; Luftman et al. 1993]. Therefore, change management / implementation strategy is an important issue in IS strategy. It determines what organizational change will be required for IS strategy to be successful and when it will be implemented and by whom, and a strategy for implementation is required as well that deals with tactical issues such as how to create a climate of changing, building and institutionalizing a specific systems [Allen, 1995; Keen, 1981].

3.4 Strategic Alignment Model (SAM)

In the previous sections, I presented two conceptual frameworks; the three level strategy in IT developed by Michael J. Earl [Earl, 1989], and Information Systems Components developed by Robert D. Galliers [Galliers, 1993], which represented general frameworks that illustrate the interrelated components of IS strategy and their relationships with the business strategy. In this section I will narrow the discussion to a more specific view and present the general model of business-IT strategic alignment developed by John C. Henderson and N. Venkatraman [Henderson and Venkatraman, 1993] and briefly explain its different components.

The Strategic Alignment Model (SAM) can be defined as a business-IT management framework to enable successful implementation of business and Information Systems/Information Technology (IS/IT) and their corresponding infrastructure components [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993]. A number of business-IT or business-IS strategic alignment models have emerged in the literature. Henderson and Venkatraman's SAM model is adapted in this study based on the developed work of John C. Henderson and N. Venkatraman [Henderson and Venkatraman, 1991 & 1993].

The SAM model represents the dynamic alignment between the business strategic context and the IT strategic context. It is based on the building blocks of strategic integration and functional integration. The strategic alignment model is defined in terms of four fundamental domains of strategic choices that consist of: business strategy, information technology strategy, organizational infrastructure and processes, and information technology infrastructure and processes. Each domain has its own underlying dimensions that consist of three components as presented in Figure (3) [Henderson and Venkatraman, 1991 & 1993]. The components of the strategic alignment model are twelve components that further define business-IT strategic alignment [Luftman et al. 1993; Luftman, 2000]. These components as outlined by Jerry N. Luftman in his article [Luftman, 2000] are as follows:

▪ **Business strategy**:

1. *Business scope*: Includes the markets, products, services, groups of customers/clients, and locations where an enterprise competes as well as the competitors and potential competitors that affect the business environment.

2. ***Distinctive competencies***: The critical success factors and core competencies that provide a firm with a potential competitive edge. This includes brand (type of product made by a particular firm), research, manufacturing and product development, cost and pricing structure, and sales and distribution channels.

3. ***Business governance***: How companies set the relationship between management, stockholders or shareholders, and the board of directors. Also included are how the company is affected by government regulations, and how the firm manages its relationships and alliances with strategic partners.
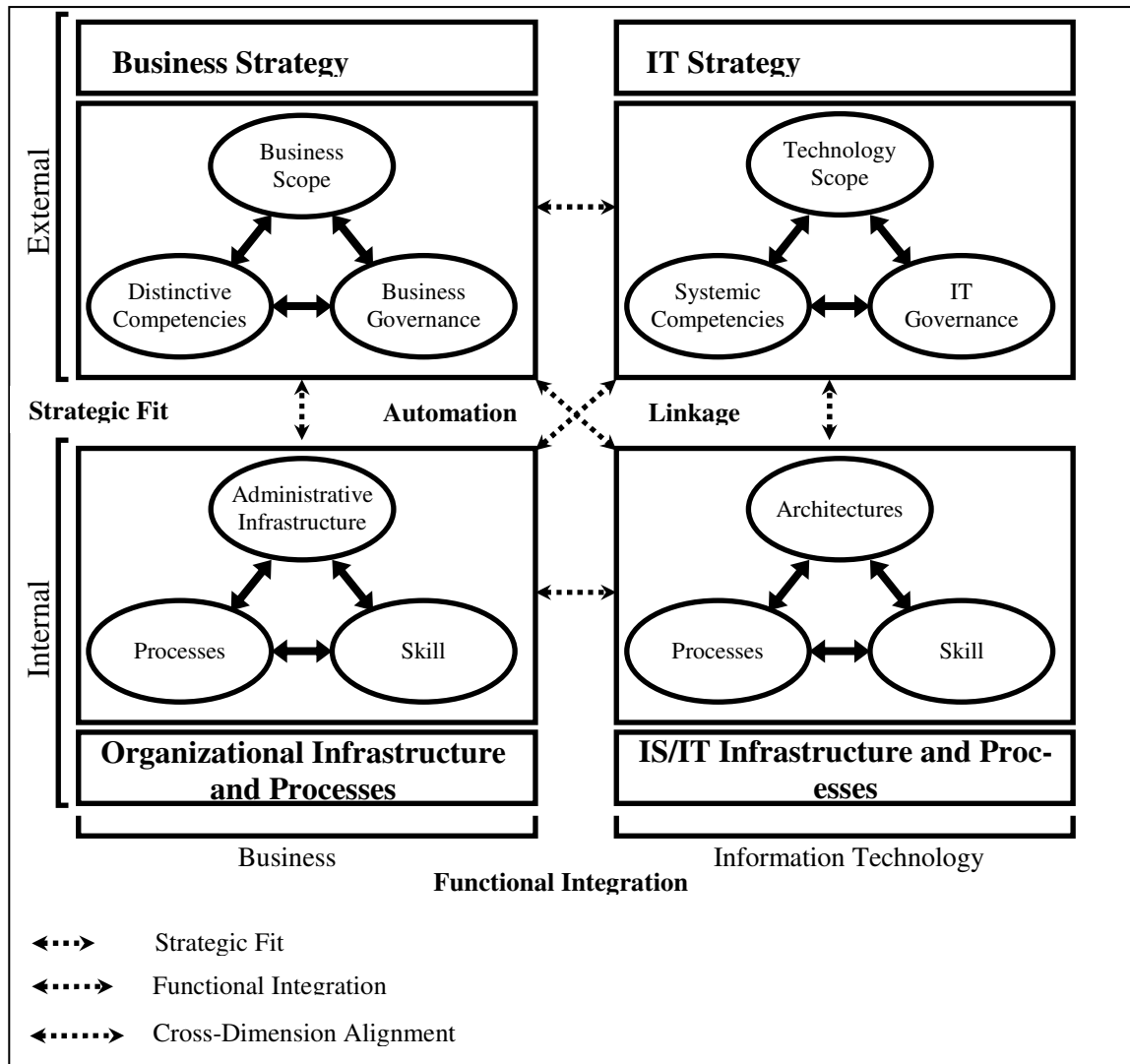
Figure (3) Strategic Alignment Model [Henderson and Venkatraman 1993]

▪ **Organizational infrastructure and processes**:

1. ***Administrative structure***: The way the firm organizes its businesses. Examples include central, de-central, matrix, horizontal, vertical, geographic, federal, and functional.

2. *Processes*: How the firm's business activities (the work performed by employees) operate or flow. Major issues include value added activities and process improvement.

3. *Skills*: H/R considerations such as how to hire/fire, motivate, train/educate, and culture.

- **IT strategy**:

1. *Technology scope*: The important information applications and technologies.

2. *Systemic competencies*: Those capabilities (e.g. access to information that is important to the creation/achievement of a company's strategies) that distinguish the IT services.

3. *IT governance*: How the authority for resources, risk, conflict resolution, and responsibility for IT is shared among business partners, IT management, and service providers. Project selection and prioritization issues are included here.

- **IS/IT infrastructure and processes**:

1. *Architecture*: The technology priorities, policies and choices that allow applications, software, network, hardware and data management to be integrated into a cohesive platform.

2. *Processes*: Those practices and activities carried out to develop and maintain applications

3. *Skills*: IT human-resource considerations such as how to hire/fire, motivate, train or educate and culture.

The strategic alignment model can be used to assess the range of strategic choices facing managers and explores how they interrelate [Ward and Peppard, 2002]. The power of this model was presented in terms of two fundamental characteristics of strategic management: strategic fit (the interrelationships between external and internal components) and functional integration (integration between business and functional domains) [Henderson and Venkatraman, 1991 & 1993] which will be presented and discussed in more detail in the next section.

3.5 Strategic alignment

With the rapid pace of progress and new advanced technologies in IS and IT, the application of IS/IT is at a new era, opening up new opportunities by using the technology strategically for the benefit of organizations and business [Galliers and Leidner, 2003]. The strategic use of IS/IT became a fundamental issue for every business and can change the basic nature of industries. The effective and efficient utilization of IS/IT requires the alignment of the IS/IT strategies with business strategies, business plan and its subsequent implementations to improve the overall competitiveness and productivity of the enterprise by improving the core business processes and exploiting the opportunities provided by IS/IT to redesign the business processes [Luftman, 2000]. Although the concept of strategic alignment has been developed more than a decade ago and has been

in use for many years, it is still valuable to corporate executives looking to achieve alignment of their business and technology strategies [Coleman and Papp, 2006; Ward and Peppard, 2002].

The concept of strategic alignment is crucial to achieve sustainable competitive advantages for many business or industrial organizations. The strategic and successful use of IT is reflected on the concept of strategic alignment. As I mentioned previously that the concept of strategic alignment has been developed for more than a decade, there are a number of definitions to this concept presented by different scholars and authors in literature, for instance:

▪ According to Henderson and Venkatraman, the strategic alignment refers to "Strategic Fit" & "Functional Integration" among business strategy, IT strategy, business infrastructure, and IT infrastructure" [Henderson and Venkatraman 1993].

▪ According to Reich and Benbasat, the strategic alignment refers to "The degree to which the IT mission, objectives and plans support and are supported by the business mission, objectives and plans" [Reich and Benbasat, 1996 & 2000]

▪ According to Luftman, the strategic alignment refers to "Business-IT alignment refers to applying Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals and needs" [Luftman 2000]. "It is synonymous with such terms as integration, cohesion, fusion, fit, match and linked" [Luftman 2005].

From the above mentioned three definitions of the concept of strategic alignment, I can deduce that although these definitions slightly differ from each others by presenting three phrases of the concept of strategic alignment, they all agree on the main goal to achieve and sustain strategic and competitive advantages. However, the minor differences that I can notice between them is that the definitions provided by Henderson and Venkatraman as well as Luftman discuss the intellectual dimensions which refers to the strategic alignment of IS/IT strategies with business strategies in the field of IS which focuses on applying IT that refers to IT functionality. Reich and Benbasat on the other hand discuss the social dimensions of strategic alignment which refers to the state in which the IS/IT executives and business executives have a common understanding and are committed to the business and IS missions, objectives and plans, which focus on IT plans or social aspects [Reich and Benbasat, 1996 & 2000]. Therefore, I deduce that the two presented perspectives of strategic alignment definitions are not totally separated, but rather interrelated. The social dimension will have a positive impact on the intellectual dimension, and consequently both of them in turn influencing realized strategic alignment.

Based on Henderson and Venkatraman's view, strategic alignment is a continuous process, ideally executed by a management team working together and recognizing where the organization is strong and weak (and why), developing action plans that leverage areas of strength, and building and managing the four domains and the interrelationship between them. The strategic alignment refers to the extent to which a firm's operational decisions within the firm are consistent with the strategy, and the firm must successfully implement its strategy to achieve its fundamental goals [Henderson and Venkatraman 1991 & 1993; Luftman et al. 1993].

A narrow view of strategic alignment concept deals with the alignment between business strategy and IT strategy [Henderson and Venkatraman 1991 & 1993; Luftman et al. 1993]. A more comprehensive view of the concept covers even aspects such as cultural values, leadership, market position, etc, which agrees with Reich and Benbasat's view on the alignment concept [Reich and Benbasat, 1996 & 2000].

3.5.1 Strategic Fit

Based on SAM model presented in Figure (3) and the definition of strategic alignment presented by John C. Henderson and N. Venkatraman, the definition of strategic alignment consists of two dimensions that are represented in the two concepts; the "Strategic Fit" & "Functional Integration", where the "Strategic Fit" represents the vertical relationship of the strategic alignment framework, and the "Functional Integration" represents the horizontal relationship of the strategic alignment framework developed by Henderson and Venkatraman as illustrated in Figure (3) [Henderson and Venkatraman, 1991 & 1993]. Strategic Fit identifies the need to manage choices that both position the enterprise in an external marketplace and decide how to best structure internal arrangements of the enterprise to execute this market-positioning strategy. Those choices that position the enterprise in a market are referred to a business strategy, and those choices that determine the internal structure of the enterprise as an organizational infrastructure & processes. Performance of the enterprise is defined by the extent to which the choices consist of these two strategies are consistent, and as business strategies change, organizational processes are required to keep pace. Similarly, for the IT strategy and its IS/IT infrastructure & processes as the with business strategy, the vertical choices between IT strategy and its IS/IT infrastructure and processes are required to be consistent. Using IT resources properly to enhance these vertical choices provides the opportunity for strategic advantages to the firm [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993].

The notion of 'Fit' is a central theme to both theoretical discussions and empirical research in strategic management [Venkatraman 1989]. It relies on knowing what needs to be aligned and how to achieve alignment. It has been defined as a content (what needs to be done) and a process (how to achieve fit) [Venkatraman and Camillus, 1984]. A conceptual framework to identify the concept of strategic fit has been proposed by Venkatraman that included six distinct perspectives of the concept fit in strategic management which has been identified and described to map fit as (a) moderation, (b) mediation, (c) matching, (d) gestalts, (e) profile deviation, and (f) covariation as shown in Figure (4). Each of these interpretations has its theoretical and analytical implications. The proposed framework by Venkatraman categorizes each perspective along three dimensions: the degree of specificity of the functional form of fit, the number of variables in the equation, and the presence or absence of a criteria variable [Venkatraman, 1989]

These six perspectives have been classified in two classificatory schemes that are represented in '*bivariate fit*' and '*systems fit*' where the bivariate fit scheme includes moderation, mediation and match, and systems fit scheme includes covariance, profile deviation, and gestalts [Venkatraman 1989, Bergeron et al., 2001].

The two classified schemes in Venkatraman's framework are slightly different, where the perspectives of the (bivariate fit scheme) that included the moderation, mediation, and match perspectives are appropriate for specifying bivariate (two variable) fit, and fit specified in various functional forms between two variables, although the second per-

spective (mediation) can hold a larger system of relationships. In contrast, the perspectives of the (system fit scheme) are appropriate for simultaneously specifying fit among a larger set of variables [Venkatraman, 1989; Bergeron et al., 2001].

Therefore, the position of fit as covariation within which the classificatory framework Figure (4) differs from position of perspective of fit as gestalts only in relation to the degree of specification of the functional form. This perspective requires a much greater precision in the pattern of logical consistency among the factors and the explication of the underlying logical link among the attributes [Venkatraman 1989].

	Low		**Many**
	Fit as Profile Deviation (V)		Fit as Gestalts (IV)
Degree of specificity of the functional form of fit-based relationship	Fit as Mediation (II)		Fit as Covariation (VI)	Number of variables in the fit equation
	Fit as Moderation (I)		Fit as Matching (III)
High			**Few**
	Criterion-specific		Criterion-free
	Choice of anchoring the specification of fit-based relationships		
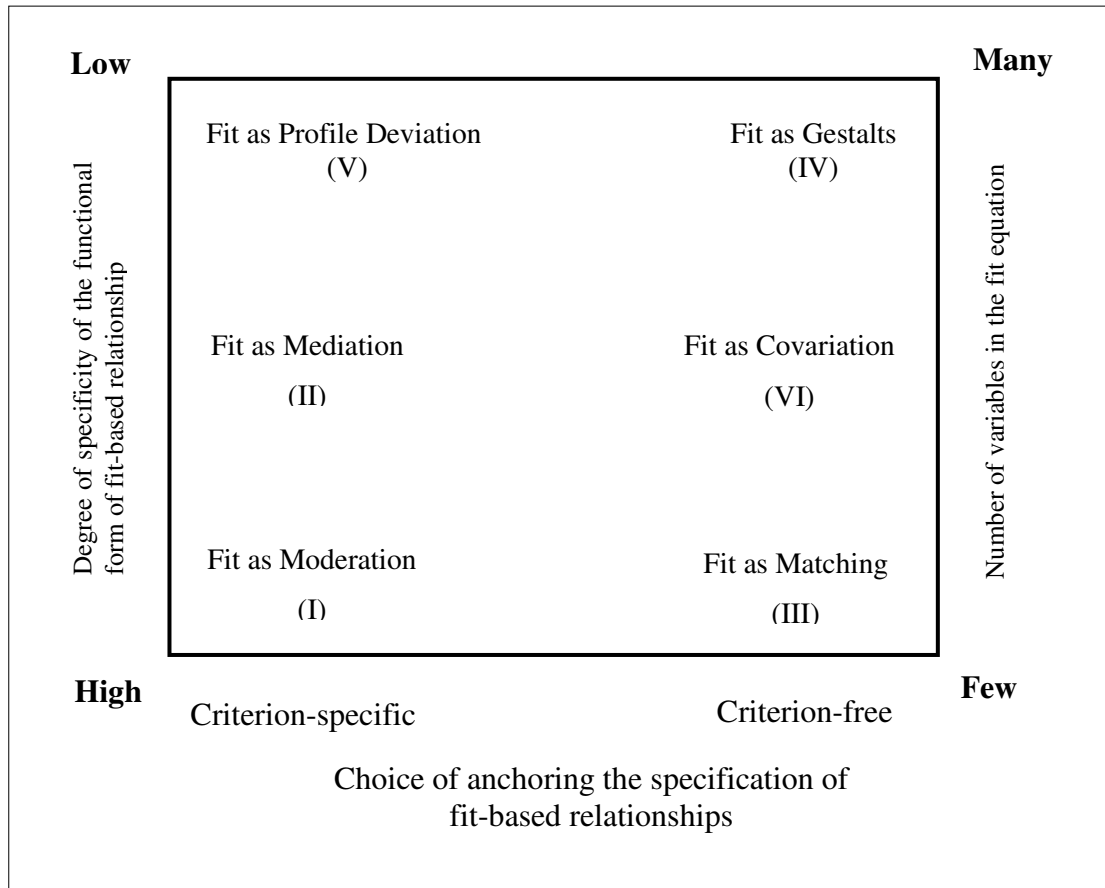
Figure (4) A classificatory framework for mapping the six perspectives of fit in strategy research [Venkatraman, 1989]

The discussion in these six perspectives of strategic fit is much more than what I briefly presented and is a very important research subject in strategic management [Venkatraman 1989]. However, going much deeper in this topic requires more research work that is beyond the scope of this master thesis.

3.5.2 Functional Integration

The "Functional Integration" represents the horizontal relationship, which is an extension to the concept of strategic fit to the functional domain of the strategic alignment framework as illustrated in Figure (3). As business strategies change, IT strategies and processes must also keep pace, and correspondingly, infrastructure and processes must keep pace as either business or information technology undergoes change [Henderson

and Venkatraman, 1991 & 1993; Luftman, et al. 1993; Coleman and Papp, 2006]. A critical element of the SAM framework is the recognition that a functional strategy needs an external or market positioning perspective and an internal infrastructure perspective, where different relationships are defined. The ability of the firm to adapt and effectively leverage technology will effectively determine the firm's position in technology market. Functional integration offers IT the opportunity to provide competitive advantage to the firm [Henderson, and Venkatraman, 1991 & 1993; Luftman et al. 1993].

3.6 Business-IT strategic alignment perspectives

Four different perspectives of business-IT strategic alignment have been identified that address the cross-domain relationships or to recognize the multivariate relationships that occur when strategic fit and functional integration in the SAM model are assessed simultaneously. These four strategic perspectives are the strategy execution perspective, the technology potential perspective, competitive potential perspective, the service level perspective. These perspectives are classified in two categories that includes; business strategy as the driver that includes strategy execution perspective and the technology potential perspective; and the second category is IT strategy as the enabler that includes the competitive potential perspective and the service level perspective [Henderson and Venkatraman, 1991 & 1993; Luftman et al 1993]. Each perspective consists of three components, which shows an interplay among three key domains shaping what would appear as a triangle. The components in that triangle are anchor, pivot, and area of impact. The anchor represents the strongest area of the business. It directs the change that business goes through based on the perspective. The pivot represents the weak area that subjects to change through the re-alignment. The area of impact represents the area that will be directly affected through the changes made in the pivot area through re-alignment. We can notice that by creating these perspectives that show cross-dimensional alignment (triangles), one is, at a minimum, always considering a relationship that involves both strategic fit and functional integration [Henderson and Venkatraman 1991; Luftman et al. 1993; Coleman and Papp, 2006]

3.6.1 Business Strategy as driver (anchor domain)

When the business strategy drives the change forces in the SAM model in Figure (3), it services as the business driver applied to the domain. It has two cross-domain relationships that represented in strategy execution perspective and technology potential perspective [Henderson and Venkatraman, 1993; Luftman et al. 1993].

Strategy execution perspective: In this perspective, the interrelationships between business strategy (anchor domain), the organizational infrastructure and processes (pivot domain), and IS/IT infrastructure and processes (impacted domain) are involved as depicted in Figure (5) [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993]. This means that the business strategy is a business driver of both the organizational infrastructure and processes, and IS/IT infrastructure and processes. This alignment perspective is, perhaps, the most common and widely known perspective for management that addresses how strategic advantage can be obtained [Luftman et al. 1993]. It corresponds to the classical, hierarchical view (top-down approach) of strategic management. This approach recognizes the need to a management framework to look down from top of the organization, thus defining critical areas for the success of the business [Henderson and Venkatraman, 1993; Luftman et al. 1993]. Therefore, it is reasonably expected

to find out that several different analytical methodologies are available to make this perspective operational: critical success factors, business systems planning, and enterprise modeling [Henderson and Venkatraman, 1993]. The main feature in this perspective is that the IT infrastructure and processes, the impacted domain, is going to undergo changes that must happen due to the changes in the business process [Coleman and Papp, 2006].

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│   │ Role of IS/IT management: Strategy implementation │
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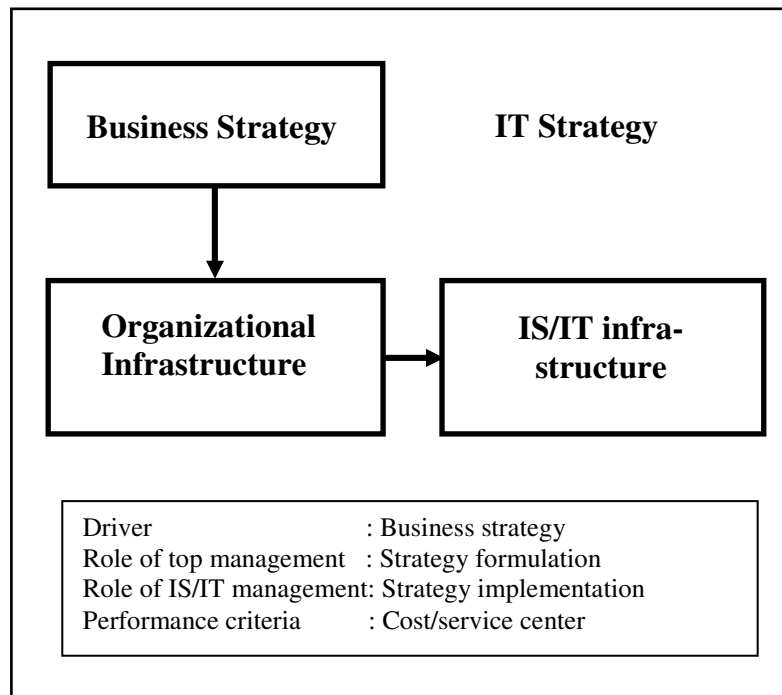
Figure (5) Strategy execution alignment perspective

Important attributes that are represented in the business driver, the roles of top management and IT management, and the performance criteria are to be identified. The top management has the role of strategy formulation to formulate the logic and choices pertaining to business strategy, whereas the role of IS/IT manager is the strategy implementation, where he/she efficiently and effectively designs and implements the required IS/IT infrastructure and processes that support the chosen business strategy. The performance criteria within this perspective to assess the IS/IT function are based on financial parameters reflecting a cost center focus [Henderson and Venkatraman, 1993].

Technology potential perspective: In this perspective, the interrelationship between business strategy (anchor domain), the IT strategy (pivot domain), and the IS/IT infrastructure and processes (impacted domain) is depicted in Figure (6). This means that business strategy is the driver of both IT strategy and the IS/IT infrastructure. This approach involves the assessment of implementing the chosen business strategy through the appropriate IT strategy and the articulation of the required IS/IT infrastructure and processes. It attempts to identify the best possible IT competencies through appropriate positioning in the IT marketplace, and also identifying the corresponding internal IS systems architecture [Henderson and Venkatraman, 1993]. The focus in this perspective is on establishing strategic fit for information technology where IT strategy is used to enable new business strategy that shows the value of information technology that repre-

sented in its contribution to the business final product or service [Henderson and Venkatraman, 1993; Luftman et al. 1993; Coleman and Papp, 2006].

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│                                        │             │
│                                        ▼             │
│      Organizational            ┌──────────────────┐  │
│      Infrastructure            │  IS/IT Infra-    │  │
│                                │   structure      │  │
│                                └──────────────────┘  │
│                                                      │
│   ┌───────────────────────────────────────────────┐ │
│   │ Driver               : Business strategy       │ │
│   │ Role of top management   : Technology visionary │ │
│   │ Role of IS/IT management: Technology architecture│ │
│   │ Performance criteria     : Technology leadership │ │
│   └───────────────────────────────────────────────┘ │
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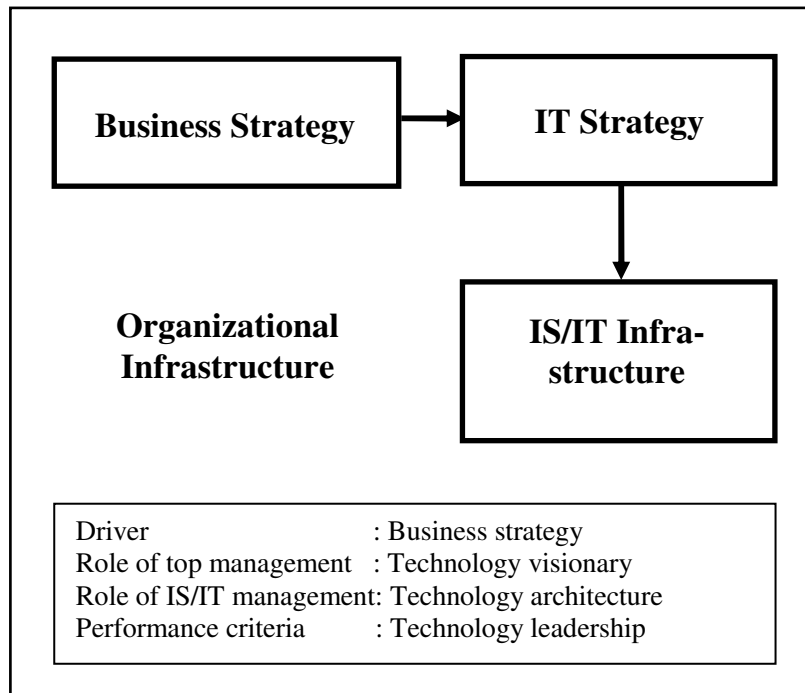
Figure (6) Technology potential perspective

The executive management in this perspective must understand the interrelationships between the business strategy, IT strategy, and IS/IT infrastructure and processes. The role of the top management is to provide technology vision that would best support the chosen business strategy, where they must understand both the technology marketplace and the strengths and weaknesses of their own internal IS/IT infrastructure. The executive management must ensure that the embedded technology, systems, and people can be changed in ways to support these technology choices [Luftman et al. 1993]. The role of IS/IT manager in this perspective is the technology architect, who efficiently and effectively makes plans and implements the required IS/IT infrastructure that is consistent with the IT vision (scope, competencies, and governance). "The performance criteria in this perspective are based on technology leadership, which often utilizing a benchmarking approach to assess the position of the firm in the IT marketplace" [Henderson and Venkatraman, 1993].

3.6.2 IT Strategy as the enabler (anchor domain)

When the IT strategy provides the change forces in the SAM model in Figure (3), it serves as the IT enabler applied to the domain to enable new or enhance business strategies with organizational implications. It has two cross-domain relationships that represented in competitive potential perspective and service level perspective [Henderson and Venkatraman, 1993; Luftman et al. 1993].

Competitive potential perspective: This alignment perspective, depicted in Figure (7), presents the interrelationships between IT strategy (anchor domain), business strategy pivot domain), and organizational infrastructure and processes (impacted domain). It is concerned with the development and use of emerging new information technology ca-

pabilities to influence or enable new business strategy, and thus creating competitive advantage to the business [Henderson and Venkatraman, 1993; Luftman et al. 1993]. This alignment perspective is a management process that explicitly weighs how emerging information technology capabilities may be applied to enhance the business strategy. It tries to identify the best set of strategic options for business strategy and the corresponding set of decisions pertaining to organizational infrastructure and processes that finally results in the transformation of organizational infrastructure (re-engineering) [Henderson and Venkatraman, 1993; Luftman et al. 1993].
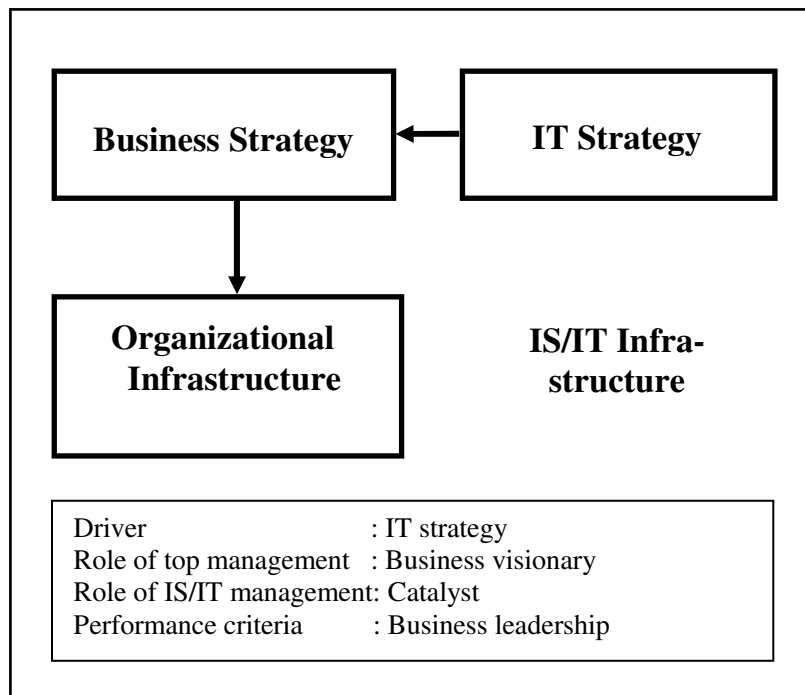
Figure (7) Competitive potential perspective

The role of the executive management in this perspective is that of a business visionary. The executive management considers how to leverage the emerging technology to achieve major change (that may lead to business transformation) by stating clearly how the emerging IT competencies and functionality as well as changing governance patterns in the IT marketplace would impact the business strategy [Henderson and Venkatraman, 1991 & 1993; Luftman et al.1993]. The role of IS/IT manager in this perspective is that of a catalyst. IS manager identifies and interprets the development and change process in the IT environment to help the business mangers to be clearly aware and weigh the potential opportunities and threats from an IT perspective. "The performance criteria in this perspective are based on business leadership with qualitative and quantitative measurements pertaining to product leadership such as market share, growth, or new product introduction" [Henderson and Venkatraman, 1993].

Service level perspective: This alignment perspective, as depicted in Figure (8), presents the interrelationships between IT strategy (anchor domain), IS/IT infrastructure and processes (pivot domain), and organizational infrastructure and processes (impacted domain). It focuses on how to build and sustain a world-class information technology products and services to the organization [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993]. This requires the executive and IT management to understand the

external dimensions of the IT strategy with corresponding to internal design of the IS/IT infrastructure and processes, where the role of the business strategy in this perspective is an indirect process which is considered as guiding to stimulate the customer demand [Henderson and Venkatraman, 1991 & 1993]. The strategic fit for information technology in this perspective creates the capacity to meet the needs of IS/IT customers [Henderson and Venkatraman, 1993].
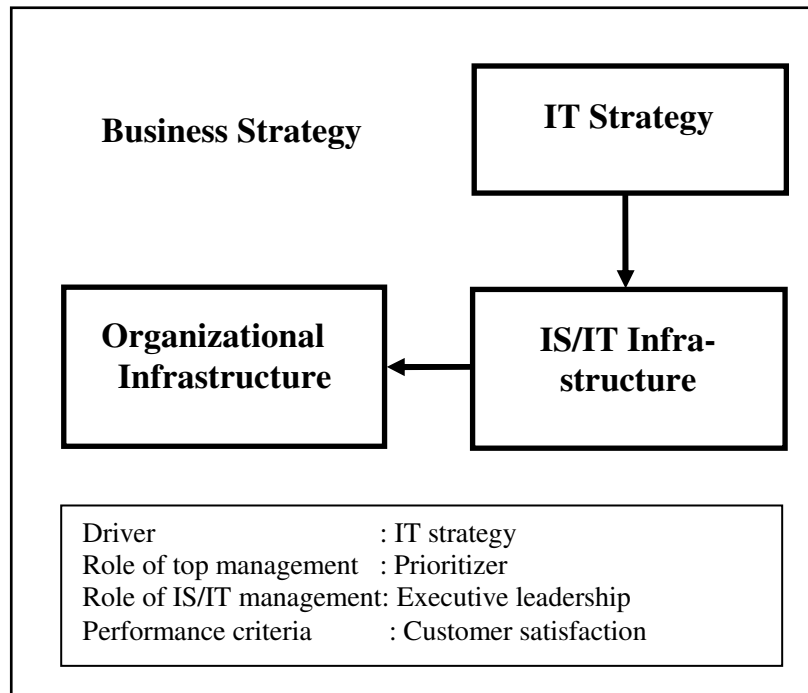
Figure (8) Service level perspective

The role of the executive management in this perspective to make it succeed is that of the prioritizer. In this role, executive management tries to effectively balance the short-term decisions to respond to customer demands with long-term decisions of investment in infrastructure by articulating how best to allocate the scarce resources both within the organization and in the IT marketplace (in terms of joint ventures, licensing, minority equity investments) [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993]. The IS/IT manager in this perspective plays the role of the executive leadership, with the specific jobs of making the internal service business succeed within the operating guidelines from executive management. "The performance criteria in this perspective are based on customer satisfaction obtained with qualitative and quantitative measurements using internal and external benchmarking" [Henderson and Venkatraman, 1993]

3.7 Alignment gap

Despite the criticality of business and IT relationship, little attempts have been made to explore that relationship further. There is a plethora of research papers in literature about business-IT strategic alignment that are concerned with issues of control of resources rather than managing relationships [Ward and Peppard, 1996]. Although the alignment gap represents an important term in business-IT strategic alignment concept, it has not been presented or discussed explicitly in business-IT strategy context. More-

over, in all the literature that I have studied, I couldn't find who refers to the concept of alignment gap between business strategy and IT strategy in particular. Therefore the focus in this section is to identify and describe this concept and to focus the attention upon the questions of aiming to understand the reasons why does the alignment gap exist between business strategy and IT strategy. This will guide the management in business and industrial firms on how to deal with the unmanageable issues, which represented in the concept of alignment gap, dealing with different ways of management practices for decreasing or bridging the alignment gap between business strategy and IT strategy.

Several scholars and authors in literature mentioned and discussed the term gap or culture gap in different articles with different names, although those studies include business and IT relation issues. For instance, "Mind the gap: diagnosing the relationship between the IT organization and the rest of the business" [Ward and Peppard, 1999]; "Reconciling the IT/Business relation: a troubled marriage in need of guidance" [Ward and Peppard, 1996]; "Information Systems issues facing senior executives: the culture gap" [Grindly, 1992], "Coping with information technology? [Galliers, et al., 1994]; and "Measuring Your Business-IT Alignment: The longstanding Business-IT gap can be bridged with an assessment tool to your efforts [Luftman, 2003]. However, none of these scholars or authors attempted to provide a comprehensive survey or review of the concept "alignment gap" between business strategy and IT strategy in a synthesized and conceptual manner. In this section I combine these different works by different scholars particularly those works that deal with business and IT, and to some extent synthesize the views of these researchers and scholars, and I try to create a valuable argumentation about this concept in general, and the alignment gap between business strategy and IT strategy in particular. Based on this, I propose a more clear understanding to the concept of alignment gap between business strategy and IT strategy, and try to identify and describe it within the context of business-IT strategic alignment.

Given the fact that both business strategy and IT strategy should aim to satisfy the same business objectives, it is clear that strategic alignment gap can be noticed in strategic actions taken by both business executives and IT executives. However if these actions are not consistent with each other, the management practices by both business executives and IT executives are taken separately which creates the alignment gap between business strategy and IT strategy.

The concept of alignment gap between business strategy and IT strategy has actually appeared due to the fact that there is a separate organizational unit in the business firm or organization, often an IT department, which is responsible for IT activities. That has led to the emergence of the gap between the so called IT organization and the rest of the business [Ward and Peppard, 1999]. An IT organization generally refers to the body of individuals providing IT services to the business in the organization. Those individual are usually highly skilled in IT professionals. IT professionals refer to the occupation of those who have certain amount of knowledge and experience in software engineering and technical aspects of computer-based hardware and software systems, and communication systems, and they perform a variety of duties to cope with the needs of the firm with the required IT services. A few of the duties of the IT professionals may include design, implementation, and maintenance of the software programs that process the data. Also among the duties of the IT professionals include manage, maintain, and upgrade networks, as well as analyze, design and develop the entire IS for the firm [Ward and Peppard, 2002; Sage, 2002].

The concept of gap used here, based on literature, refers to what is generally called 'culture gap' which is a variable that explains the problems that can exist between the IS function and the rest of the business [Ward and Peppard, 1999 & 2002]. It has been identified as a key factor in limiting the successful utilization of IT in the organization [Grindly, 1992]. Culture is an abstract concept refers to the organizational culture in the organizational context. It is a shared set of values, behaviors, and beliefs together with attitudes and experiences that represent unique characters which take the form of rules of behavior in a work group or organization [Galliers et al. 1994; Grindly, 1992]. Organizational culture can be defined as "a pattern of shared basic assumptions that has been developed by a group in an organization to cope with its external adaptation and internal integration, that has worked well enough to be considered valid and to taught to new members as the correct way to perceive, think, and feel in relation to those problems" [Schein, 2004]. Consequently, I can find that the culture of the IT organization differs from the overall dominant organizational culture, where the business management people talk and deal with business concepts and issues in terms of financial and marketing, while the IT management people talk and deal with IT concepts and issues in technical terms such as features and technical feasibility, which creates the culture gap. Therefore, viewed from this standpoint, the perceived culture gap or organizational culture gap can be defined as the degree of incongruence between the culture of IT organization and the overall dominant organizational culture.

Although, the concept of alignment gap has been initially defined, as presented above, in terms of organizational culture concept, however, it is arguable that alignment gap could be due to many other reasons, rather than culture gap. Ward and Peppard declared that they view that culture is a convenient description of the symptoms but not an explicit cause of the gap [Ward and Peppard, 1999]. Referring to Henderson and Venkatraman's definition of strategic alignment and the SAM model and discussion of the SAM theory presented in the previous sections [Henderson and Venkatraman, 1991 & 1993]; Luftman, Lewis, and Oldach's argumentation about how IT can enable the achievement of competitive and strategic advantage for the firm, which supports Henderson and Venkatraman's view [Luftman et al., 1993]; Reich and Benbasat's paper about the social dimension of alignment [Reich and Benbasat, 1996 & 2000]; Prahalad and Hamel's discussion of the core competence [Prahalad and Hamel, 1990]; Croteau and Raymond's research paper about performance outcomes of strategic and IT competencies alignment [Croteau and Raymond, 2004]; Peterson's presentation about crafting IT governance [Peterson, 2004]; and Ward and Peppard's discussion in "Mind the Gap': diagnosing the relationship between the IT organization and the rest of the business[Ward and Peppard, 1999 & 2002]; I can deduce that there are other factors influence the pace and effectiveness of progress in using IS/IT and in delivering business benefits [Ward and Peppard, 2002]. These factors play a role in creating the alignment gap between the business strategy and IT strategy. Ward and Perppard argued that the weighting of each factor varies over time, and will also vary from one organization to another [Ward and Peppard, 2002]. These factors include:

- The knowledge;

- The capabilities of the technology;

- The economics of deploying the technologies;

- The applications that are feasible;

- The Skill and abilities available, either in-house or from external sources, to develop the applications;

- The Skills and abilities within the organization to use the applications;

- The pressure on the particular organization or its industry to improve performance

- The interpersonal relationships management;

- The Communication;

- The shared vision;

- The leadership;

- The corporation;

- The organizational learning;

- The education, training, and development, and

- The empowerment, etc.

The lack of any of these factors, as well as the organizational culture gap presented previously, either individually, in combinations of some of them, or mutually, will have a role in creating the alignment gap between business strategy and IT strategy, which reduce the business-IT effectiveness.

To determine or distinguish the nature of the alignment gap, Peppard and Ward have identified an initial framework that can help in diagnosing and describing alignment gap in greater details [Peppard and Ward, 1999]. This framework identifies four interdependent dimensions which are represented in: leadership; structures and processes; service quality; and value and beliefs which are depicted in Figure (9). These four dimensions are addressed within the context of the organization's strategy and are briefly defined as:

1. *Leadership*: Leadership refers to the role of the CEO in relation to IT activity as well as the CIO in relation to business management activity. The director's ability to add value is the biggest factor in determining whether the IT is a business enabler (asset) or business driver (liability).

2. *Structures and processes*: Structures and processes refer to the mechanisms through which organizational activity takes place. This dimension is concerned with how the organization organizes for IT, including IS/IT strategy development, delivery of IT benefits, structure for service delivery, mechanisms for business and IT organization to come together. The structural dimensions deal with the IS functions with the enterprise. In addition to the structural issues, there are also processual mechanisms such as the involvement of business management in IS/IT strategy formulation which can impact the overall ownership of that strategy; alignment of the IS/IT strategy with business objectives; and responsibility for delivering business benefits [Peppard and Ward, 1999].

3. *Service quality*: The service quality recognizes that the provision of some IT services will be based around a customer-supplier relationship. This might entail meeting predefined or expected criteria and service levels, some of which may be enshrined in formal service level agreements. The service quality refers to the way that an organization provides products or services which impacts the degree of satisfaction to its customers. It is the customer's perception of the organization's perform-

ance that determines its success. It is founded on a comparison between what the customer feels should be offered and what is actually provided. To that end, the customer is the ultimate arbiter of quality and no matter how good the service provider feels they have been in providing a service it is the perception of the customer that is important in assessing its quality [Ward and Peppard, 1999]. The customer is the ultimate arbiter. Therefore I find that the service quality is a customer defined and is assessed based on perceptions. It is founded on a comparison between what the customer feels should be offered and what is actually provided. [Ward and Peppard, 1999].
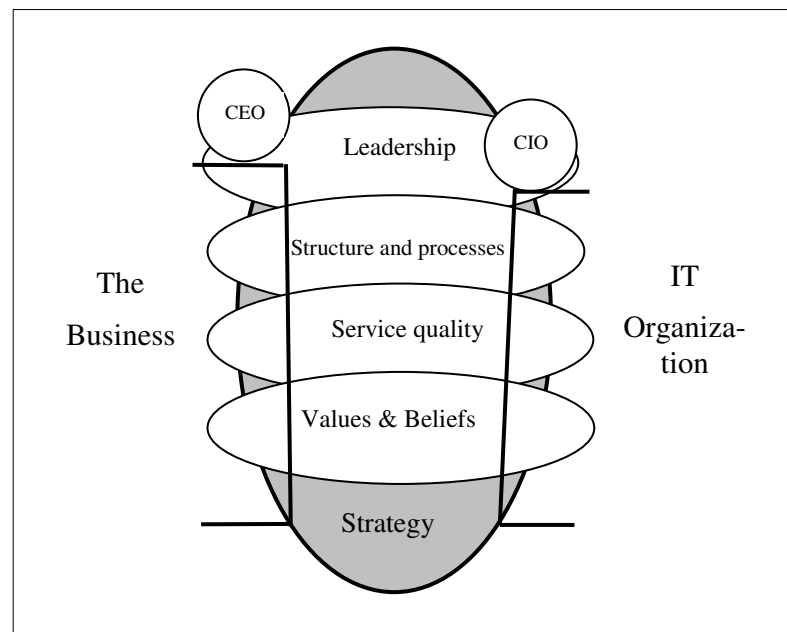
Figure (9) A research framework for diagnosing the gap [Ward and Peppard, 1999]

4. *Values and beliefs*: The values and beliefs of organizational members have a tremendous impact on many dimensions of IT in organizations, including how it is managed. For example, if business managers do not believe that IT is a strategic this is likely to define how they manage and deal with IT and associated issues. The final dimension to the framework is concerned with the values and beliefs of the organizational incumbents (the official who holds an office). Values and beliefs can significantly shape how attitudes develop and hence behavior and practices. These beliefs are shaped through ones career based on the experiences which one has with IT. Previous experience both with IT and within the industry or the organization is likely to have a major influence. Individual values and beliefs are indeed a powerful force and should not be underestimated. For instance, if business managers do not believe that IT is strategic this will reflect in how they manage and deal with IT and IT issues [Ward and Peppard, 1999]

The four dimensions in this framework are interdependent and can't be viewed at an isolation where each dimension on its own is not sufficient to address the organizational aspects of the relationship and that a more holistic perspective is required [Ward and Peppard, 1999 & 2002]. The authors argued that their research also sought to establish the relationship amongst these dimensions in order to better understand the interaction amongst them. The underlying premise of this framework is that the organizations can

determine how the business management activities under the direction of the CEO and the IT management activities under the direction of CIO are related to each others, harmonized and agreed with each others in developing their jobs, which help the organization success in their business and gain competitive advantages [Ward and Peppard, 1999].

The authors operated that framework on three organizations as an initial step to develop a systematic organization of IT to build a mutual understanding and have shared attributes for both business and IT management. Basically, it was found that the framework has helped to diagnose the nature of the alignment gap although it was not complete as the study was developed on just three organizations. However, as pointed out by the authors they still have the plan to carry out further surveys in a range of organizations in an attempt to develop the further typologies and provide comparative assessment, "relationship benchmarks", which organizations can use to take action to address gaps and ultimately improve the value they derive for IT [Peppard and Ward, 1999]. Though, as mentioned earlier, I have found that the framework have proved valuable in understanding the concept of alignment gap where it offers a reasonable approach in diagnosing the alignment gap. It will give much better results if it will be elaborated to include more aspects and to be operated in much more and many different organizations in different industries. That will help to determine the different reasons that cause the alignment gap, which consequently will lead and help organizations to determine how to bridge or minimize the alignment gap between business strategy and IT strategy to achieve and sustain competitive advantages.

Hence I can conclude that the concept of the alignment gap in general, viewed from a managerial perspective, refers to the state of unmanageability to create a strategic harmony and balance between the business demands and the resources of the business in an enterprise. Viewing the issue from the IS/IT in relation to business management in particular, the alignment gap refers to the degree of incongruence between the business management and the IT organization which is a reflection of disharmonious relationship that is substantially high or low between business strategy and IT strategy that will harm the gain of strategic advantage. Therefore, the greater disharmony is detected, the greater gap is perceived.

3.8 Critique of the concept of strategic alignment

Although the concept of business-IT strategic alignment of Henderson and Venkatraman's 1993 article [Henderson and Venkatraman, 1993] became an interesting concept and an important research subject to business and IT people both in academia and industry, where there is a great deal of research in the development and use of IT efficiently in business, it has been highly criticized by Claudio U. Ciborra in his well-known article "De profundis? Deconstructing the concept of strategic alignment" [Ciborra, 1997] and his book "From Control to Drift", [Ciborra, 2000]. Ciborra was a professor and researcher in Information Systems and Organization at several European universities: Bologna, London School of Economics, HEC, Oslo, Theseus; and Göteborg. He viewed IS and IT as social disciplines rather than scientific disciplines, which let him to claim that much of the IS and IT world particularly in strategic management, marketing, and academia are in crisis [Ciborra, 1997 & 2000]. According to Ciborra's view, the approaches developed by Henderson and Venkatraman to the concept of business-IT strategic alignment do not reflect the reality of managerial practices that can be seen or observed

in actual business life and organizational and management practices. Ciborara viewed the SAM model developed by Henderson and Venkatraman [Henderson and Venkatraman, 1993] is an attempt to bridge two extremely unstable variables that are represented in business strategy and IS/IT strategy. "While strategic alignment may be close to a truism conceptually, in the everyday business it is far from being implemented. Strategy ends up in "tinkering" and the IT infrastructure tends to be drift" [Ciborra, 1997, pp.68-69]. Ciborra argued that, "alignment as a conceptual bridge, urges us to reflect on the true nature of it shores: management strategy and technology" [Ciborra, 1997, pp.70]. Based on his view, there is no observable alignment, nor measureable fit, because strategy is de facto bricolage (putting different things together to create something), while the technology that refers to IT-Infrastructures tend to "drift", which is mostly "out of control" as IT is always changing [Ciborra, 1997; Earl, 1992]. He argued even if there will be some results of the strategic alignment, the obtained results don't stay long.

Ciborra explains the trajectory of the formerly promising research program on strategic alignment developed by Henderson and Venkatraman: "Those researchers made multiple abstractions out of the muddling-through and drifting; idealized tinkering and called it strategy; idealized technology as a controllable set of means and called IT; granted to these concepts existence and essence, transformed them into boxes and traced a line between them. Then, they started the difficult journey back to the real world, and found difficulties in measuring "the strength of the line" or formulating prescriptions that would be followed by managers when tracing the line on the field of practice. They ingeniously provided more and more sophisticated representations of alignment, as more analytical and detailed maps for the actors to operate in the real world. To no avail: the higher conceptual detail remained confined to the world of idealized abstractions, but had little impact on the life worlds of business and organizations. The research wheel was turning on empty." [Ciborra 1997].

In the same article, "Deconstructing the concept of strategic alignment" [Ciborra, 1997], and his book "From Control to Drift" [Ciborra, 2000], Ciborra suggested an alternative approach to address the issue of alignment between strategy and technology in real life business practices and everyday experience, by using a new language that includes three concepts: care, hospitality, and cultivation, rather than rationalistic models and plans.

- Care: The driving force behind alignment in-action (practically) as opposed to on-paper (theoretically) is a great amount of care taking performed by various actors involved in the design implementation and use of IT applications. In this caring, it is just familiarity, intimacy and continuous commitment to the practical business life (*starting with the initial steps of analysis throughout constructing the system, training the users, introducing the system into practice, modifying it as new practice emerges , and so on*) in the work environment [Ciborra, 1997 & 2000]. Care has a structure that is linked to how business people are-in-the everyday world, articulated in perception, circumspection, and understanding processes

  1. Care can be performed as intentional perception: a way of coping with issues that deal scientifically with natural, human and artificial "objects" in organizations. "Care expresses itself in being able to develop concepts, variables, relations, explicit choice criteria and algorithms in order to design better business processes, regulate implementation processes, design structured systems, and so on." [Ciborra, 1997]

2. Care can be performed as circumspection: is a form of concern that consists in practical problem solving and learning in working environment in the organization that help people get familiar with the business processes and learn to cope with deficiencies and breakdown, surprises and shifting effects of technology. People learn how the organization reacts and evolves how it improves solutions in an opportunistic fashion [Ciborra, 1997]

3. Understanding: refers to a form of taking care which is deep and invisible to have a common understanding. It is the domain of provided and furnished objects of business and work activity that naturally integrated with daily life business processes and organizational practices [Ciborra, 1997]

- Hospitality: As technology is always in a continuous change, and is highly ambiguous, the concept of hospitality addresses the organization's acceptance to IT to deal with the unexpected or unpredictable ambiguity in order to achieve the strategic alignment [Ciborra, 1997 & 2000].

- Cultivation: The notion of cultivation could be used as a way to cope with intricacies of the relationship between strategy and technology that are hidden by the deceptively clear management concepts as argued by Ciborra. It is a concept that is viewed as the dynamic interaction between current strategy and future technology – i.e., a process by which technology is accumulated (often in an unplanned ways) with much greater future potential than necessary to fulfill current needs [Ciborra, 1997 & 2000]. "Cultivation is a conservative belief in the power of natural systems to withstand our effort at design either by disarming them or ruining them by breakdown" [Ciborra, 1997].

Summary

In this chapter I briefly introduced the basic concepts and theoretical background of IS/IT strategy and its related components, the strategic alignment model, and the strategic alignment and alignment gap. I introduced two frameworks, the three levels of strategy of IT developed by Michael J. Earl, and IS strategy components developed by Robert D. Galliers to present the basic definitions of the interrelated components of IS/IT strategy. The frameworks show the overall all components of IS/IT strategy, and the relationship of the IS strategy with the business strategy. I briefly presented the SAM model and its components as well as its different alignment perspectives.

The chapter identified the strategic alignment and alignment gap concepts, their definitions, determining the reasons that cause the alignment gap, and presenting a framework developed by Peppard and Ward that helps diagnosing the alignment gap, which I found that will be helpful for further research to explore the business-IT relationship more fruitful for future studies. Finally, the chapter concluded with a brief description about Ciborra's critique to the strategic alignment concept.

In the next chapter I will present the research model that consists of the external components of the SAM model, and identifies the alignment gap between business strategy and IT strategy. Based on that model and the theory that presented in this chapter, I will apply my model on four case studies or examples, in four different firms in four different industries to illustrate how the theory and concepts of strategic alignment of the SAM framework developed by Henderson and Venkatraman can be combined with and applied to business-IT alignment issues in practice.

4. RESEARCH MODEL

The previous chapter presented an overview of different theoretical views and backgrounds, and frameworks that discussed the interrelationships of business and IT strategies, business-IT strategic alignment, and strategic alignment and alignment gap. The discussion will now be narrowed down to a more specific research model that deals with a subsection of the presented theory of business-IT strategic alignment. This chapter introduces the research model of this project, which presents the theoretical basis to answer the research question of how can an organization manage strategic alignment? It identifies the different components of the proposed research model that constitute the business strategy and IT strategy.

The proposed research model in project, the framework for this research study, focuses on the external components of the SAM model that consists of business strategy and IT strategy, and identifies the alignment gap between them as depicted in Figure (10). This model is derived from a previous work developed by John C. Henderson and N. Venkatraman [Henderson and Venkatraman, 1993]. With this proposed model, I try to explore the interrelationship between business and IT strategies that consists of the extended business domain and IS/IT domain.
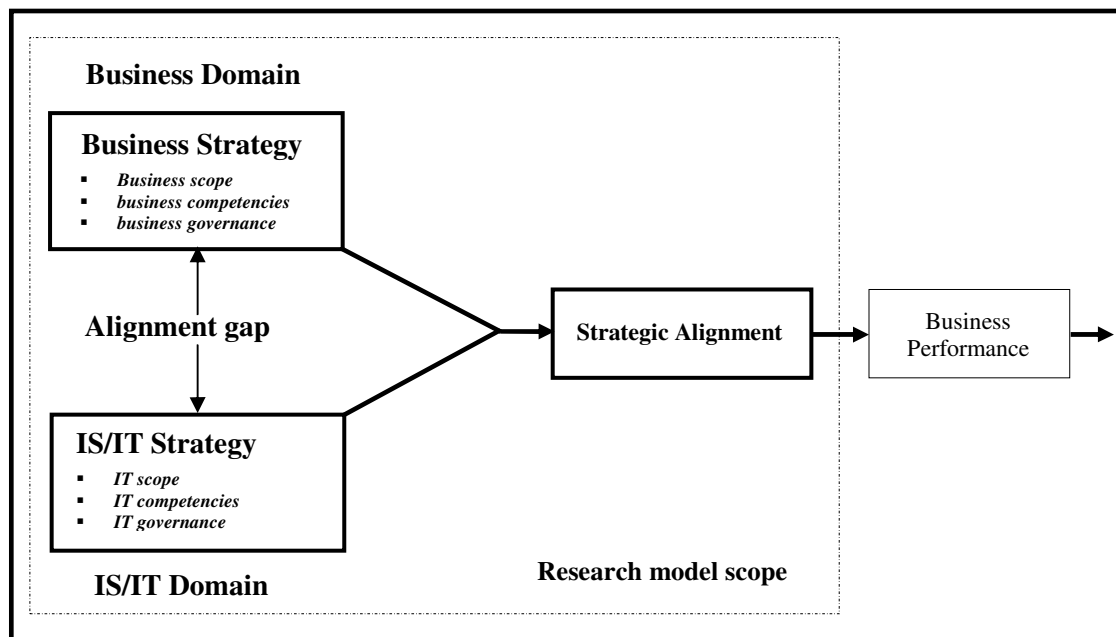
Figure (10) The research model

The research model in this study shown in Figure (10) identifies the relationship of the external components of the SAM model that involves achieving strategic alignment between business strategy and IT strategy. The strategic alignment in this model refers to the strategic harmony that can translate the deployment of IT into an actual increase in business performance. My main concern in this study presenting this research model deals with how organizations can manage successfully the strategic alignment between business strategy and IS/IT strategy.

4.1 Business strategy

The business strategy refers to a detailed plan of an organization for achieving success in business. It represents the first component of the research model as depicted in Figure (10) in which the organization competes and is concerned with decisions such as product-market offering and the distinctive strategy attributes that differentiate the organization from its competitors, as well as the range of "make-versus-buy" decisions, including partnerships and alliances. The components that form the business strategy consist of three components that are represented in business scope, business competencies, and business governance [Henderson and Venkatraman, 1993].

4.1.1 Business scope

Business scope refers to the organization's business and everything that might affect the business activities and progress. It includes the markets, products, services, groups of customers/clients, and the locations where an enterprise competes as well as the business buyers, competitors, suppliers, and potential competitors that affect the business environment [Henderson and Venkatraman, 1993; Luftman et al., 1993; Luftman, 2000].

4.1.2 Business competencies

Business competencies refer to all attributes of business strategy that contribute to a distinctive, comparative advantage to an organization over its competitors. These attributes include cost and pricing structure, product or service quality, value added service, research, manufacturing and product development, and superior sales and distribution channels used by business [Henderson and Venkatraman, 1993; Luftman et al., 1993; Luftman, 2000; Wilson, 1989].

4.1.3 Business governance

Business governance or corporate governance is a wide framework of systems and rules used to run and control the business process in a firm. It is the process by which corporations are properly managed, directed and controlled including the internal and external business regulations and monitoring mechanisms towards enhancing business performance and achieving long term business values. Business governance also refers to the external business relationship that exists between management, the board of directors, and stockholders of the company. It involves make-versus-buy choices in business strategy. Such choices cover a complex array of inter-organization relationship such as strategic alliances, joint ventures, marketing exchange, and technology licensing [Henderson and Venkatraman, 1993; Luftman et al., 1993, Luftman, 2000].

4.2 IT strategy

IT strategy consists of an IS component and an IT component, where IS defines the organization's requirements for information and systems to support the overall strategy of the business. It is firmly grounded in the business, taking into consideration both the competitive impact and alignment requirements of IS/IT. The IT strategy is concerned with outlining the vision of how the organization's demand for information and systems will be supported by technology, where essentially, it is concerned with IT supply [Luftman, 2000; Luftman and Brier, 1999]. The IS/IT strategy in my research model

refs to how the firm is positioned in the IS/IT marketplace. The components that form IS/IT strategy consist of technology scope, IT competencies, and IT governance [Henderson and Venkatraman, 1993].

4.2.1 IT scope

IT scope refers to those specific information applications and technologies (for example, electronic imaging, local- and wide-area networks, expert systems, and robotics) that support current business strategy initiatives or could shape or create new business strategy opportunities for the organization [Henderson and Venkatraman, 1993; Luftman et al., 1993; Luftman, 2000].

4.2.2 IT competencies

IT competencies refer to the characteristics of IS/IT (such as system reliability, cost-performance levels, interconnectivity, flexibility) that could contribute positively to create new business strategies or better support of existing business strategy [Henderson and Venkatraman, 1993; Luftman et al., 1993; Luftman, 2000; Wilson, 1989].

4.2.3 IT governance

IT governance is a subunit of business or corporate governance that deals with IT functions in the firm. It involves a number of IT management activities for the board and executive management, such as assigning IT roles and responsibilities, defining constraints within which IT operates, measuring performance, and managing risk and obtaining assurance. IT governance refers to the external relationships (such as, outsourcing alliances, make-vs.-buy decisions, joint research and development for new IT capabilities) that the organization depends upon. It describes how the authority for resources, risk conflict resolution, and responsibilities for IT is shared among business partners, IT management, and service providers. Business project selection and prioritization issues are a part included in this component [Henderson and Venkatraman, 1993; Luftman et al., 1993, Luftman, 2000]. Another approach to IT governance is presented through several IT governance frameworks that have been suggested (such as CoBIT and ITIL) to help IT managers structure and formalize the IT management process to the firm for a holistic management of IT governance processes [Van Grembergen, 2007; De Haes and Van Grembergen, 2004].

4.3 Strategic alignment

Strategic alignment refers to the state of congruence between business strategy and IT strategy in the firm to support the overall business purpose that influences the firm's business performance [Henderson and Venkatraman, 1991 & 1993; Luftman et al., 1993; Luftman 2000 & 2005; Reich and Benbasat, 1996 & 2000].

4.4 Business performance

Based on literature, the impact of strategic alignment between business strategy and IT strategy should have a constructive impact on the business performance of the firm, which is defined as the measures of growth and profitability of the firm through its business endeavors and deployment of organizational and technological resources [Venkatraman, 1989; Smith and McKeen, 1993; Croteau et al., 2001; Croteau and

Bergeron, 1999; Chan et al., 1997]. It has been argued that increasing operational effectiveness of IT in business through the right use of IT as a service and business-driven exploitation will impact the business performance of the firm [Henderson and Venkatraman, 1991 & 1993]. Business performance represents the ultimate dependent variable of the research model [Kefi and Kalika, 2005]. Although, organizational or business performance is an important task in strategic alignment and has been identified and discussed by different scholars that showed its strong connection with the business-IT strategic alignment [Venkatraman, 1989; Henderson and Venkatraman, 1991 & 1993; Smith and McKeen, 1993; Croteau et al., 2001; Croteau and Bergeron, 1999; Chan et al., 1997; Reich and Benbasat, 1996 & 2000; Sabherwal and Chan, 2001], it will not be discussed or elaborated in this thesis project as it is out of the scope of this work. However, it has been introduced in the research model to show that output result of the strategic alignment will reflect on the business performance.

Summary

This chapter introduced the research model that has been developed from the theories presented in chapter three to be used with empirical data to answer the following question: How can organizations manage business-IT strategic alignment? The different components of the proposed research model have been briefly described. The business performance of the organization is introduced as an output result of the strategic alignment; however, it will not be considered or elaborated in this research work as mentioned above that it is out of the scope of this master thesis. The next chapter will present the empirical data as case study examples, which will be presented based on the research model framework to determine the strategic alignment in practice.

5. EMPIRICAL DATA AND ANALYSIS

This chapter presents four illustrative case studies as a practical approach to the concept of strategic alignment to illustrate how the theory and concept of strategic alignment framework, presented in the previous chapters, can be combined with and applied to business-IT alignment issues in practice. The four case studies developed in two different ways; two of them were gathered and developed from literature, and the other two were gathered and developed from interviews of two firms in industry.

The first two cases are about two firms, McGraw-Hill Inc. and Charles Schwab Corporation. McGraw-Hill Inc. is a global information services provider serving the financial services, education and business information markets. Charles Schwab Inc. is a financial firm engages in securities brokerage, banking and related financial services. These two cases have been gathered and developed from literature, and the main sources of this work are Henderson and Venkatraman's article [Henderson and Venkatraman, 1993], Luftman and Brier's article [Luftman and Brier, 1999], and Luftman, Papap and Brier's article [Luftman, Papp, and Brier, 1999]. The two cases have also been developed from the web sites of the firms, McGraw-Hill Inc. [McGraw-Hill], and Charles Schwab Inc. [Charles Schwab], and the IT Governance Institute [ITGI, COBIT 4.0]. These two firms will be presented with the same details and information as presented in literature.

The other two cases were gathered and developed from interviews with employees from two firms in industry. One is a global US firm in IT industry, with a US-based head office and I will call it Global IT Service Professional (GITSP), and the other one is a global European firm in Miscellaneous Industry, with a EU-based head office, and I will call it European Global Manufacturing (EUGM). These two firms will be presented anonymously and without any details or identifiable information for confidential considerations based on an agreement with my interviewees.

The gathered materials in the presented case studies in this thesis comprise business strategy and IT strategy and their components, and are organized and presented in this chapter according to the framework of the proposed research model in the previous chapter. The empirical results for every case will be initiated with a brief description about every firm which will be followed with a brief description of its business strategy components and attributes, and IT strategy components and attributes. The results will show how these four firms have developed four different approaches in minimizing or bridging the alignment gap between business strategy and IT strategy to achieve business-IT strategic alignment.

5.1 McGraw-Hill Inc. PRIMIS Online Custom Publishing

McGraw-Hill Companies, Inc. is a publicly traded corporation headquartered in Rockefeller Center in New York City, in the USA. Its primary areas of business are education, publishing, broadcasting, and financial and business service [McGraw-Hill]. McGraw-Hill is among the firms that recognized the best use of innovative technology that has successfully exploited the IS/IT business advantages and launched PRIMIS Custom Publishing as an online facility, and established a standard for educational publishing operation in 1990 [Henderson and Venkatraman, 1993]. The McGraw-Hill's PRIMIS is a new way of publishing textbooks which may significantly alter the nature of the firm's industry. The McGraw-Hill developed PRIMIS Online in response to the needs of

changing curricula and the concept over high prices of textbooks for students, and introduced the concept of making books for individual school needs and adapting books that they already publish to better fit a teacher's course content [McGraw-Hill; Henderson and Venkatraman, 1993].

At McGraw-Hill's PRIMIS, custom publishing for the college textbook marketplace is focused on materials complied in their PRIMIS application. PRIMIS lets college instructors create a customized textbook tailored to the specific needs of a course. Developing under the direction of McGraw-Hill editors, the PRIMIS database contains core chapters and sections from existing textbooks, journals, and articles. The teacher selects and determines the sequence of the material. Teachers can also add their own materials and notes. The database of information and supporting technologies represent an IT-based business strategy. PRIMIS facilitated McGraw-Hill's strategy of building a product tailored to specific requirements. In the context of strategic alignment, there are important considerations for integrating the infrastructure. The traditional "assembly-line" processes for textbook publishing (acquisition, writing, editing, manufacturing, selling, and distributing) have been replaced by processes designed to take advantage of the opportunity to build a customized book electronically and produce it on paper where needed. The IT infrastructure identifies standards, processes, and skills that support this new "book-building" infrastructure for the college textbook business [Luftman and Brier, 1999; Luftman, Papp, and Brier, 1999].

The McGraw-Hill's PRIMIS Online reflects a strategy of offering custom textbooks as an alternative to standard textbooks via its sophisticated electronic imaging technology infrastructure (a three-way joint venture with Eastman Kodak and R. R. Donnelley & Sons Co.). In this business strategy, McGraw-Hill determines the needs of an individual instructor and, from a set of modules, constructs or assembles a custom textbook that satisfies the market need. The IT strategy for this initiative must address and define a critical IT scope that represented in (electronic imaging technology), systemic competence that represented in (superior level of clarity of imaging to guarantee high-quality printing and flexible binding capability), as well as IT governance that represented in (joint ventures and long-term agreements for obtaining the requisite competencies). Choices in these three areas determine the position of McGraw-Hill in the IT and business marketplaces and have the potential to both shape and support the business strategy. Specifically, these choices can be directly related to choices pertaining to business scope and business competencies. More importantly, the technology attributes play a very important role in shaping these new business strategy initiatives. Such a view of IT strategy has a clear external positioning focus that is to be distinguished from its internal IS infrastructure [Henderson and Venkatraman, 1993].

5.2 Charles Schwab Corporation Inc.

The Charles Schwab Corporation is a discount broker firm headquartered in San Francisco, California, in the USA [Charles Schwab]. Schwab is among the first firms in the USA that has successfully used IT to improve customer services in a dynamic business environment. Its business focus for many years has been to lower its operational costs and offer superior service at lower prices to its investors. The company's traditional investor seeks discount brokerage services and is unwilling to pay for investment advice. In the late 1990s, Schwab's direction shifted toward delivering customized information to the investor as quickly as possible. In so doing, Schwab was converting to a full ser-

vice brokerage firm. In the years since it was incorporated in 1971, the company has been a leader in using information technology as an important tool in meeting its changing, but well-defined business goals [Luftman, Papp, and Brier, 1999].

For Charles Schwab, the step of examining how IT can enable distinctive competency is straightforward. Schwab has a history of relying on technology to provide top customer service and to lower costs. To meet the customer need of retrieving stock quotes and placing orders rapidly, Schwab introduced TeleBroker, a fully automated telephone system, in 1989. As newer IT capabilities became available through the years, Schwab analyzed how these technologies might help them meet their business goals. Some examples are Equalizer, a software product that allows personal computer users to trade stocks online, and StreetSmart, the first Windows-based software to provide online trading of bonds, equities, and mutual funds [Luftman, Papp, and Brier, 1999].

Schwab was able to capitalize on previous technological capabilities as new technology initiatives were introduced. The Schwab Mutual Fund OneSource program, introduced in 1992, enabled customers to purchase mutual funds much more easily than was possible previously. Customers could now purchase from their own brokerage account using any of Schwab's trading interfaces, including TeleBroker and StreetSmart [Luftman, Papp, and Brier, 1999].

Having established a sound business strategy through the years, Schwab had to evaluate their strategic choices. In 1995, when the Internet began to have a profound effect on the economics of the brokerage industry, they decided to introduce e.Schwab. This new service allowed investors to obtain account information through the Internet. (In 1998, e.Schwab was replaced by (www.schwab.com) During the last four years, Schwab's embrace of this technology has resulted in a transformation of their business. They have become an information provider in addition to a transaction processor. In so doing, the "no-frills" discount broker is becoming a full-service brokerage firm [Luftman, Papp, and Brier, 1999].

Schwab relies on marketing and innovative uses of IT to offer investment programs to its clients. Schwab's strategy involves the use of IT to lower costs and to provide superior service at lower prices. Therefore, the IT strategy creates a distinctive competency that positions Schwab in their market. All of their IT initiatives have been driven toward customer service, including Telebroker (1989), a fully automated telephone system for real-time stock quotes and order placement, and StreetSmart (1993), software that lets clients trade through Schwab via a PC. In 1996 Schwab began to let customers' trade mutual funds on its Web site, becoming the first major brokerage firm to offer the service [Luftman, Papp, and Brier, 1999]. The IT governance is represented in implementing an IT governance framework called Control Objectives for Information and related Technology (COBIT), which is an IT governance program in the organization implemented to ensure consistency in risk management and IS audit [ITGI, COBIT 4.0].

5.3 Global IT Service Provider Inc.

The Global IT Service Provider (GITSP) Inc. is an American IT firm was founded in the late of 1950s, and is headquartered USA, where it deals with delivering business results to clients worldwide and helps customers achieve business strategic goals and profit from the use of IT. Its core capabilities are in the areas of IT outsourcing, systems inte-

gration, and management consulting. Strategic alliance and IT outsourcing are among the important business features of this case.

The advent of IS and IT in late 1950's due to the rapid progress in computer science and engineering, and digital communications systems and technology, IS and IT keep reinventing itself at an amazing pace, and create new developments in industry in many different ways. Moreover, IT creates new business opportunities, where IT became a business core in itself to many different organizations. GITSP is among those firms that have IT is their core business. It provides IT consulting and professional services to commercial and government markets. The company's outsourcing services include the operation of customer's technology infrastructure, including systems analysis, applications development, network operations, desktop computing, and data center management. It also provides business process outsourcing, such as procurement and supply chain, call centers and customer relationship management, credit services, claims processing, and logistics services. The company's IT and professional services include systems integration, such as designing, developing, implementing, and integrating complete information systems; consulting and professional services, such as advising clients on the strategic acquisition and utilization of IT; and business strategy, security, modeling, simulation, engineering, operations, change management, and business process re-engineering. It also licenses software systems for the financial services markets, as well as provides various end-to-end e-business solutions to the commercial and government clients. The company offers its services to various customers in the aerospace/defense, automotive, chemical and resources, consumer goods, financial services, healthcare, manufacturing, retail/distribution, telecommunications, and technology industries to clients worldwide.

GITSP as an IT superpower that manages IT internally to itself where the firm treats itself as a client and it manages IT externally to help firms to manage their IT to support their business and to create business value for them. Moreover, as the firm treats itself as a client, it tests and learns new things and develops new methodologies, and the firm exports that knowledge to their clients which is a significant feature of this firm. Therefore, the business nature of this firm involves internal business and external business that depend and complete each others. In the late 1999, GITSP formed long term a mutual corporation and strategic alliance with Hitachi Ltd to offer the customers of Hitachi leading-edge information technology IT systems and services in Japan. Under the alliance, GITSP and Hitachi established a collaboration to provide IT systems and services incorporating world-class business practices, enabling customers to compete more effectively on a global basis.

In the firm's business strategy, its business scope involves offering IT professional business services to clients in the global commercial and government markets. Its service offerings include IT and business process outsourcing, and IT applications. In its IT strategy, the IT scope is represented in implementation of different information systems such as SAP ERP to increase work efficiency and enhance business performance. For instance, GITSP implemented a Sales Force Automation system (SFA) based on mySAP Customer Relationship Management (mySAP CRM) solution to provide an integrated, multidimensional pipeline and company-wide view of potential business. Also to make salespeople more effective and their results easier to consolidate, the GITSP implemented Global Sales Force Automation (GSFA) management systems which are information systems used in marketing and management that help automate some sales

and sales force management functions. The new GSFA management system was designed to replace all the existing Customer Relationship Management (CRM) approaches in the company, consolidate all their information into a single repository, and accomplish more than any of them individually ever could. In relation to GITSP-Hitachi collaboration, the business scope is represented in developing business-IT solutions and with its alliance with Hitachi, GITSP and Hitachi offer IT systems and services to Hitachi customers based on the business needs.

Viewing the firm from the business and IT competencies, the firm's business competencies are represented in high quality services, fast delivery of its products and services with acceptable prices (the higher the volume the lower the price) to their clients. Moreover the firm always aims for high reliability and quality and follow many quality standards such as IT Infrastructure Library (ITIL) and ISO quality standards. The firm's IT competencies are represented in achieving a competitive advantage and enhance business performance, the firm implemented different information systems that give it the capacity to operate compatible telecommunication networks and computer systems in support of enterprise-wide application. As GITSP has an experience in all areas of IT and uses the same systems as offered to external clients where applicable. In the GITSP-Hitachi collaboration, the business-IT competence is represented in advanced total solutions expertise and know-how, and in technologies and sufficient strategic knowledge and technical skills that GITSP has to make the best possible IT investment to its clients.

Regular education and retraining represent a very important issue in business and IT competencies as IS/IT continuously subject to change due to the rapid development and progress in IS and IT. In this perspective, GITSP has an extremely sophisticated education platform covering just about any business or IT scenario that the company will need. Employees are expected to use bench time to take CBT's (Computer Based Training). There are education programs for all roles in the organization from beginner to expert, where education in GITSP is a prioritized area. Therefore, all members of business as well as IT members are able to keep up-to-date on the latest technologies, and sufficient strategic knowledge and technical skills to make the best possible IT investment for the company. By this vigorous education program, GITSP gains competitive advantages; first, all employees are always well knowledgeable and skilled with the new IS/IT knowledge and technology. Second, by the education programs, GITSP creates a corporate business-IT culture environment among people in the firm, which make the firm highly competitive in IT industry.

The business governance of GITSP is corporate governance, where the firm manages its relationships and strategic alliances with strategic partnerships at a corporate level then follows up at local level. Strategic alliances are essential to the GITSP with the major product suppliers like SAP, Oracle, Microsoft, IBM, Sun, etc. The company enters all markets as a single entity; however, in some cases when the deals are very large, the company enters the market with partnerships because no one supplier can deliver the whole. The IT governance is represented in the internal business strategy as a subunit of the business governance and is centrally steered by the CIO/CTO unit. Externally due to the business nature of the firm, the IT governance is represented in strategic partnerships with IT vendors and strategic alliances with IT clients. For instance, the GISTP-Hitachi collaboration, the IT Governance is represented in strategic alliance and IT outsourcing alliance.

5.4 European Global Manufacturing Inc.

European Global Manufacturing (EUGM) Inc. is a European manufacturing firm that was founded for more than 100 years ago with about 40000 employees in approximately 100 manufacturing sites that span 70 countries. The firm supplies bearing, seals, lubrication and lubrication systems, maintenance products, mechatronics products, power transmission products, customer solutions and related services globally. The business process outsourcing is a significant feature in this case.

IT is a key asset for business and high-tech firms, and it plays an important role in business today, and in the way that businesses run internally and externally with customers, clients, suppliers, etc. As IT has been recognized as an essential resource and business assets, it has established its unique position in business, where IS/IT emerged in business and became an essential part of most firms that impacts their business processes and development. Most firms established their own IT organizations to deal with IT services and run the IT business processes for the firm. However, not all organizations have succeeded to establish their own IT organization inside their companies, as an in-house IT service, to run their IT business processes and services and gain the advantages of IT to support their business strategy, which is due to many reasons such as the financial costs of IT, business focus of the firm that has not strong connection with IT, lack of IT expertise or practitioners, or a mixture of them etc., the issue that leads that organizations to refer to other choices such business process outsourcing to cope with their needs of IT services. EUGM among the firms who introduced IT services to their firm to enable business competencies. Before the year 2001, EUGM had an in-house IT services department to handle all the IT services of the firm. However, later in 2001, the management of EUGM noticed that the firm couldn't control the financial costs and expenses of the IT services, where they preferred to have a better control on the cost and expenses of their IT, and therefore the firm decided to outsource all its IT services to Electronic Data Systems Corporation (EDS) and settled a long term agreement with it as a way to reduce costs and focus more effectively on their core business. EDS is a global technology service company that delivers business solutions, to provide the firm with all the internal IT services, including internal business application development tasks to cope with their business needs and create a business value.

In a brief description, I find that, in the business strategy of EUGM Inc, its business scope is represented in developing products and offering services in the business of rolling bearing and seals to their customer and market needs, the firm's business competencies are represented in offering high quality products, fast delivery and on time, and its business governance is a corporate governance that adapted business policy that the firm enters the market as single entity or via alliances, partnership, or outsourcings based on market needs. The firm's IT strategy addresses an IT scope that represented in different information systems to fit every business area based on their needs, for instance in the Finance business area the firm implemented Masterpiece to help the firm streamline financial flows to improve business-to-business, trade-related, transaction-based financial functions and processes – including sourcing, procurement and performance management. In the Product Development Area, for the firm to have an efficient business processes and effective development of complex information assets including product design, service documentation, and regulatory submissions, the firm implements Windchill to manage product content and development processes. The IT competencies are represented in the characteristics of the different advanced software systems implemented in

the firm such as Masterpiece and Windchill that support the business process management and guarantee high quality products and fast delivery. In addition to the IT capabilities that the firm uses, which represented in different software systems and IS; the firm adapted vigorous education and training programs to all employees that develop the knowledge and skill to create business and IT capabilities, as well as to create a corporate business-IT environment among people in the firm. Although IT service is outsourced to EDS, employees in the firm need to be knowledgeable and highly skilled with the both business and IT resources and capabilities of the firm in order to run the business efficiently. The IT governance is represented in outsourcing alliance and joint research and development for new IT capability, where it handles the business processes of the firm with EDS.

By that I can notice that EUGM managed to benefit from outsourcing IT operations because they managed to focus more effectively on their core business and reduce the firm's IT infrastructure costs and improve its competencies. Therefore, for the firm to settle its outsourcing process, EUGM created an IT Governance unit to take care of the business process between the EUGM and EDS.

6. DISCUSSION AND CONCLUSIONS

Chapter three identified the basic concepts and theory of business-IT strategic alignment, and based on literature, the concepts of strategic alignment and alignment gap have been discussed and identified. Chapter four introduced the research model which presents the theoretical basis used to answer the research question of how can organizations manage strategic alignment? The previous chapter presented empirical studies as illustrative case examples. This chapter, based on the presented empirical data, discusses the Business-IT strategic alignment in practice.

6.1 Discussion

This research study focused on the business-IT strategic alignment and basically aimed to improve and broaden my knowledge and understanding to the concept of business-IT strategic alignment in theory and practice, and to determine how can firms manage to achieve and sustain strategic alignment by bridging the alignment gap between business strategy and IT strategy to achieve competitive advantage and gain business value.

The theory of strategic alignment was first introduced in the mid-1980s by John C. Henderson and N. Venkatraman, and their development of the SAM framework in 1990 explains the interaction between business and IT strategy and the corresponding organizational and IS/IT infrastructures and processes [Henderson and Venkatraman, 1991 & 1993; Luftman et al. 1993]. The SAM model constitutes a valid theoretical foundation of business-IT strategic alignment for further investigation on how to achieve business value from ever-increasing IT investments [Henderson and Venkatraman, 1993; Luftman et al., 1993; Bergeron, Raymond, and Rivard, 2004]. However, the SAM model didn't address the concept of alignment gap between business strategy and IT strategy, the issue that represents an obstacle for a firm to leverage its IT capabilities in a proper way to support its business strategy or create new business opportunities to the firm. The proposed research model in this thesis identifies the relationship between the external components of the SAM model, and addresses the concept of alignment gap between the business strategy and IT strategy. The strategic alignment in this model refers to the strategic harmony that can translate the deployment of IT into actual increases in business performance.

The previous chapter presented four case study examples, two of them developed from literature, and the other two case studies managed by contacting two organizations and developed empirically to determine how can organizations successfully manage strategic alignment to achieve business performance and value. The framework of the discussion in this chapter is basically built on the proposed research model in this thesis project that included:

- **Business strategy**, which included the business scope (core business of the firm), business competencies, and business governance; and

- **IT strategy**, which included the IT scope, IT competencies, and IT governance.

The discussion will be classified into three perspectives: The **business-IT scope perspective**, **business-IT competencies perspective**, and **business-IT governance perspective**. This framework of discussion will present and discuss the characteristics and at-

tributes of the different components of business strategy and IT strategy of the four case studies presented in the empirical data in the previous chapter.

- **Business-IT scope perspective**: This perspective includes business scope and IT scope. The business scope of a firm basically refers to the core business of the firm which includes products or service with specified features and functionality, business market and customers, etc [Henderson and Venkatraman, 1993]. The IT scope refers to the specific information applications and technologies such as information systems implemented by an organization to support its current business strategy initiatives or create new business strategy opportunities for the organization. Based on the strategic alignment model developed by Henderson and Venkatraman that firms should align the components of their business and IT strategies to enhance their business performance [Henderson and Venkatraman, 1991 & 1993, Luftman et al., 1993].

In the presented four case studies examples in the previous chapter, the IT supports business, but in different ways in the four companies. For instance, in McGraw-Hill Inc case example; IT created a new business strategy opportunity to the firm by launching the PRIMIS Custom Publishing as an online facility, and established a new standard for educational publishing operations in 1990. In this case, IT became a business driver. In the case study of Charles Schwab, the IT supports the business strategy, where the firm has successfully used IT as a business enabler by implementing different software systems such as the automated and algorithmic software systems to improve customer services in a dynamic business environment. In the EUGM firm, the IT supports the business strategy by implementing different IS systems in different business areas such as Windchill software system and Masterpiece software system that help the firm efficiently control all information assets, while optimizing associated business processes, to increase work efficiency and enhance business performance. In the case of the GITSP firm, the IT strategy supports the business strategy by implementing different information systems such as SAP ERP that delivers enhanced capabilities for finance, human capital management, sales procurement, and other key enterprise function to increase work efficiency and enhance business performance. Also it can be noticed that in GITSP case, the IT is a business core of the firm, where the firm is a client to itself as well as IT service and knowledge provider to their customers, and hence, it can be noticed that the IT in this case is a business driver. Therefore, it is clear that in the four case studies the business scope and IT scope are highly harmonized, where IT scope supports business scope.

- **Business-IT competencies perspective**: This perspective includes business competencies and IT competencies. For business competence, there are many definitions to the concept presented by different authors in literature such distinctive competence, core competence, etc. which are often used to refer to the same meaning [Peppard and Ward, 2004]. The business competencies refer to all attributes of business strategy that contribute to a distinctive, comparative advantage to an organization over its competitors [Henderson and Venkatraman, 1993]. The concept business competency refers to core business competence which was developed in management field and defined by C. K. Prahalad and Gary Hamel as "Core competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies. Core competence is communication, involvement, and a deep commitment to working across organizational boundaries. It involves many levels of all people and all functions" [Prahalad and Hamel, 1990].

Core competencies are the capabilities and characteristics that refer to the collective learning and special knowledge and/or skills in an organization, especially those of complex harmonization of individual technologies and production skills that help the organization stay competitive. They are the functional, integral, and strategic capabilities that an organization possesses that provide a wide access to a variety of markets, make significant contribution to the perceived customer benefits of the end product, be difficult to imitate, and improve the organization's competitive position.[Prahalad and Hamel, 1990; Sanchez, 2002; Croteau and Raymond, 2004; Peppard and Ward, 2004; Wilson, 1989]. IT competencies are essential parts of IT strategy that help organizations enable proper IT support [Henderson and Venkatraman, 1993; Croteau and Raymond, 2004; Wilson, 1989]. They refer to the characteristics of the implemented IS/IT in the firm that could contribute positively to create new business strategies or better support of the existing business strategies [Henderson and Venkatraman, 1993].

Based on the SAM model, Henderson and Venkatraman argued that to fully leverage IT functionality, business and IT competencies should be integrated and aligned [Henderson and Venkatraman, 1993; Croteau and Raymound, 2004]. An outstanding example of the IT competencies aligned with business competencies presented first in the case study of McGraw-Hill Inc. where IT competencies of the firm's product are represented in superior level of clarity of imaging to guarantee high-quality printing and flexible binding capability which supports the business competencies that represented in high quality products and services, and fast delivery. For Charles Schwab, the IT competencies are represented in its IT capability of the IS/IT systems implemented by the firm such as the different software systems that allow customers to trade stocks online, and later the new service allowed investors to obtain accounts through the Internet to improve business process efficiency and flexibility. For the EUGM firm, the IT competencies are represented in the characteristics of the software systems that the firm implemented, for instance the Windchill software systems enables the firm to streamline products development processes and deliver superior physical goods and information products. In the GITSP case example, as the core business of this firm is IT services and specialized in IT applications, the firm develops internal IT projects and then sells them to their customers, where by that the firm manages to make their IT-projects to become their business opportunities. Hence, the (internal) IT competence became an external business competence in GITSP, which is an approach that creates an alignment between business strategy and IT strategy. Therefore, in this perspective, it is clear that the business competencies and IT competencies of the firms presented in the empirical case studies are consistent and mutually dependent in their prediction of business performance [Henderson and Venkatraman, 1993; Croteau and Raymound, 2004].

- **Business-IT governance perspective**: This perspective includes business governance and IT governance. Business governance refers to a wide framework of systems and rules by which a firm is directed and controlled, which includes both internal and external business issues and the decision-making rights of the firm. The emergence of IT in business created the business-IT interaction that needs an IT governance unit to manage IT decision-making rights, describes the responsibilities among different stakeholders in the firm, and define procedures and mechanisms for making and monitoring strategic IT decisions [Peterson, 2004]. The concept of IT governance in general refers to the organizational capacity exercised by the board, executive man-

agement and IT management to control the formulation and implementation of IT strategy to ensure the fusion of business and IT [Van Grembergen, 2007]. IT governance is a subunit of the business governance deals with IT systems performance and IT management and the external relationships such as outsourcing alliances, and joint research and development for new IT capabilities. IT governance and strategic alignment became important issues in many organizations. To address the alignment challenges, it is important for a firm to have a clear and in-depth view regarding its business goals and how IT goals and IT processes support those goals [Van Grembergen et al. 2007]. For firms to improve their IT decision-making rights, they either to create their own IT Governance framework that fit to their business needs and circumstances, or adapt IT Governance framework from the available IT governance frameworks, where there is no single framework of IT Governance is the best that will fit the needs of every firm. The three primary known IT Governance standards are the Control Objectives for Information and related Technology (COBIT) framework developed by Information Systems Audit and Control Association (ISACA) [Van Grembergen, 2007; De Haes and Van Grembergen, 2004], the International Organization for Standardization's ISO 17799 (ISO 17799) [ISO 17799 CENTRAL], and the Information Technology Infrastructure Library (ITIL) [IT Infrastructure Library].

Based on the SAM model, Henderson and Venkatraman argued that to align business and IT strategies, IT governance should be linked, and harmonized and compatible with the business governance in the firm [Henderson and Venkatraman, 1993]. The empirical study showed different approaches in aligning business governance with IT governance for every firm based on the business circumstances, nature, and needs, where the IT governance in McGraw-Hill case is represented in (joint ventures and long-term agreements with vendors for obtaining the requisite competencies). For Charles Schwab case study, the firm implemented COBIT, an IT governance framework, to establish an IT governance program in the firm and ensure consistency in risk management and IS audit. In the EUGM case study, as the IT service is outsourced, the firm established the IT governance unit, which is fully responsible for the efficiency of IT support within the firm as the firm outsourced its IT services. In GITSP case, due to the nature of the business core of this firm that it is an IT service firm, the responsibility of IT is basically shared between business management people and IT management people and the IT governance unit in the firm controls the outsourcing process, where we can notice that the business governance and IT governance are merged together, and business governance and IT governance is represented in strategic partnerships with different venders and strategic alliances with different clients. Therefore, based on the empirical evidence, the IT governance and business governance of the firms presented in the empirical case studies are very highly harmonized and compatible, where they succeeded in aligning the IT governance with their business governance, although they managed that in four different approaches based on the nature and circumstances of their businesses.

The presented four empirical case studies in this research project indicated that the four firms have developed a successful approach in using the advantages and capabilities of IT properly to create new business initiatives and enable distinctive strategy attributes that differentiate their firms from their competitors. Knowledge and skill, and competency are among the important key factors that influence a firm's ability to use IT effectively. These factors helped to create the business-IT capabilities that let these firms

succeed to bridge the alignment gap between business strategy and IT strategy and achieve business-IT strategic alignment.

Drawing on the concept of business-IT strategic alignment in the research model presented in chapter four in this thesis project wherein business strategy and IT strategy coexist, and based on the empirical evidence and discussion of the four case studies presented above, we can notice the following:

1. These four firms have shown an outstanding example of the importance of achieving harmonization (alignment) between business strategy and IT strategy to maximize their IT investment and gain competitive advantages. They used IT capabilities in the right time to improve their customer services in a dynamic business environment. They relied on marketing and innovative uses of IT to offer investment programs to their customers. An outstanding example is represented in the case example of GITSP, the firm has strategic alliances and partnerships with major product suppliers like SAP, Oracle, Microsoft, IBM, Sun, etc., where the firm always updated with latest advanced technology. At the same time, the firm treats itself as a client, where it creates IT projects internally, tests and learns new things, develops substantial gains in knowledge and skills about new IS/IT products, develops new methodologies, and exports that knowledge and experience to their clients, which represented a competitive advantage to the firm. Therefore the IT capability of the GITSP can be adapted to strategic changes within the firm as IT organization is strategic in the firm as the firm deals with IT service and application.

2. In terms of the conceptual model presented in chapter four, and the theory of business-IT strategic alignment developed by Henderson and Venkatraman [Henderson and Venkatraman, 1993] presented in chapter three, the four firms managed successfully to align their business strategy with IT strategy by bridging the alignment gap between the two components and gain strategic advantages in two ways of success:

   ▪ *IT as a business driver*: The McGraw-Hill and GITSP firms have succeeded to use their IT capabilities to become a business driver by creating a new business opportunities that enhanced their business performance, both in growth and profitability.

   ▪ *IT as a business enabler*: The Charles Schwab and EUGM firms have succeeded to invest their IT capabilities to support their business strategy, which consequently enhanced their business performance, both in growth and profitability.

3. The empirical view illustrated that the firms under study managed successfully to align their business strategy and IT strategy based on a technical perspective that is represented in the suitable IT capabilities that support or enable business strategy as viewed by Henderson and Venkatraman in their proposed SAM model [Henderson and Venkatraman, 1993]. However, the non-technical issue such as skill, responsibilities and know-how to translate to business capabilities haven't been empirically verified, although it has been argued by Henderson and Venkatraman and theoretically presented in the internal components of the SAM model, which are represented in organizational infrastructure and processes, and IS/IT infrastructure and processes.

4. Managing strategic alignment can not be settled in a strict way. It is a managerial process that demands knowledge and skill, as well as flexibility, where the empirical study of the illustrative case examples presented in the previous chapter have shown

that the four firms followed slightly different managerial approaches in managing strategic alignment due to the difference in their business nature and circumstances, as well as the management and leadership styles of the executive management of the firms.

5. The results of the analysis of the four case examples do not show any clear evidence either from the two cases developed from the literature or the two cases developed from the industry, that indicate these firms have adapted or used the SAM model or any of its equivalent models of strategic alignment to manage strategic alignment. Although the authors of the articles from where I developed the two case studies about McGraw-Hill Inc. and Charles Schwab Corporation Inc. mentioned that McGraw-Hill and Charles Schwab are among the first firms that managed successfully to align their business strategy with IT strategy and achieve business value. However, they didn't mention or clarify that achievement has been settled by adapting any strategic alignment framework [Henderson and Venkatraman, 1993, Luftman and Brier, 1999; Luftman et al. 1993; Luftman et al. 1999; Luftman, 2000]. The issue that leads me to the interpretation, as the previous discussion has implied, that I can deduce the hypothesis that the management particularly the top or executive business and IT management people of the firms presented in the case studies are innovative and knowledgeable and highly harmonized, and have a good strategic thinking and planning. That could be either they successfully managed the strategic alignment intuitively by themselves, based on their innovative thinking and efficient managerial skills and experience in business and their long vision of IT in industry without referring to any strategic alignment framework, or they might consulted experts who are knowledgeable and skilled with business and IT, and have a long vision about the future of business and IT together.

6. The four case studies don't identify the responsibility issue, which refers to the role of who does what, particularly the local responsibilities for implementation as well as local business process, which I think it is a very important issue to achieve strategic alignment.

But nevertheless I can agree on that the presented four empirical case studies in this research project indicated that although the four firms have followed slightly different approaches in minimizing or bridging the alignment gap between business strategy and IT strategy to manage the strategic alignment, they have all developed a successful approach in using the advantages and capabilities of IT properly to create new business initiatives and enable distinctive strategy attributes that differentiate their firms from their competitors. Knowledge and skill and competency, and technical and learning abilities represented considerable factors that helped these firms to develop their success. For instance in GITSP's case example, the GITSP adapted a sophisticated and regular education and training programs covering any area in business and IT to the employees for all roles in the firm. By that the firm has managed to become highly competitive in business-IT, where it became well-known firm with know-how and management consultation. Moreover, with the education programs to all employees in the firm, all employees become knowledgeable with business and IS/IT, and always updated with the latest information and development as IS/IT is always in a continuous and rapid development. This creates a corporate business-IT culture among people in the firm, where all employees in the firm always have a common understanding, shared vision, etc. that will constructively impact on the business performance both internally in the firm and externally with the clients.

Therefore, to achieve the success of the companies presented in the empirical case studies that they performed in translating their deployment of IT into actual increases in business performance, companies need to address how to bridge the alignment gap between the business strategy and IT strategy to create mutual understanding between the business and IS/IT functions, which include people, knowledge and know-how, and efficient management practices. Business and IT are intertwined and interdependent, and the business people and the IT people must have a common understanding to the concepts, terminology, and goals that are essential to business-IT alignment. Moreover, as argued by Henderson and Venkatraman that business-IT strategic alignment is a dynamic process of continuous adoption and change [Henderson and Venkatraman, 1991 & 1993], which is an important issue in dealing with strategic alignment as either business or technology undergoes change where IS and IT are always in rapid progress and development.

6.2 Conclusions

This research presented a qualitative study based on a literature study supported with an empirical study in an advanced research area, business-IT strategic alignment, that is important both to business executives and IS/IT managers and professionals. It focused on the business-IT strategic alignment and aimed to investigate and identify the strategic alignment and alignment gap between business strategy and IT strategy, and to determine how can organizations manage successfully to align their business strategy with IT strategy to achieve competitive advantage and gain business value?

Based on literature the concepts of strategic alignment and alignment gap are defined as follows:

- Strategic alignment refers to the state of congruence between business strategy and IT strategy in the firm to support the overall business purpose that influences the firm's business performance.

- Alignment gap between business strategy and IT strategy refers to the degree of incongruence between the business management and the IT organization which is a reflection of disharmonious relationship that is substantially high or low between business strategy and IT strategy that will harm the gain of strategic advantage from using IT properly.

Strategic alignment is a dynamic process and is very difficult to achieve due to the continuous change process in business and technology. Therefore, for organization to achieve and sustain business-IT strategic alignment that will lead to a sustainable competitive advantage and gain business value, organizations have to address the following:

- Determine and define effective management practices that involve knowledge, skill, and practices for both business and IT management people, where IT people have to be highly skilled and knowledgeable with business management issues, and the business people have to be skilled and knowledgeable with IT management issues.

- Institute a regular program of education and retraining as well as refresher courses on the new IS/IT knowledge and technology to both business and IT management people, as IS/IT continuously subjects to change due to the rapid development and progress in IS and IT.

- Incorporate cultural change into the organization to change business practices, and create a business-IT culture among people in the organization to create a corporate business-IT culture environment.

- Business and IT management people including executives, CEO and CIO, have to develop shared understanding and vision of the role of IT within the firm and they have to recognize the IT as a business driver.

The work verified that business-IT strategic alignment is about the relationship between business and IT strategies, the role of IT in the business strategy and the added business value through using IT properly in the firm. It determined the reasons for the business-IT alignment gap. The study proposed a solution that helps organization to achieve business-IT strategic alignment. The research results have provided a richer view of business-IT strategic alignment by verifying and identifying the concepts of strategic alignment and alignment gap between business strategy and IT strategy, and indicated that the research findings support the perspectives of the leading authors in business-IT strategic alignment research field. The research further indicated how an organization could manage to minimize or bridge the alignment gap between business strategy and IT strategy and create a successful approach to achieve competitive advantage and gain business value.

Consequently, this thesis project makes the following contributions to business management and IT management research and literature:

- It identifies and presents a clear definition to the concept of business-IT strategic alignment;

- It determines the reason to achieve a strategic alignment is due to the existence of alignment gap between business strategy and IT strategy;

- It identifies and provides a clear definition to the concepts of strategic alignment and alignment gap, and determines the reasons that cause the alignment gap between business strategy and IT strategy; and

- Based on the theory and empirical data using four different case studies, the study proposed how can organizations manage the strategic alignment between their business strategy and IT strategy to achieve and sustain competitive advantages and business performance.

6.3 Research limitation/implication

Despite the above results and contribution by this thesis project, the research findings have inherent some limitations, which suggest some sort of care and attention in interpreting and applying or using the research findings. In the empirical data the limitations are represented in:

1. The two cases that have been developed from literature couldn't be developed more broadly and elaborated in the discussion because the presentation of these two cases is restricted to what is available in the literature.

2. The two cases from the industry couldn't be developed more and elaborated in the discussion because the study is strictly limited to the available information and collected data from the industry. Also the time limitation of this master thesis project has also played a role in that.

3. As argued by Henderson and Venkatraman that strategic alignment is a dynamic process rather than an event [Henderson and Venkatraman, 1991 & 1993], a longitudinal research rather than cross-sectional investigation would have provided a deeper knowledge and more accurate information about the relationship between business strategy and IT strategy and the reasons of the business-IT strategic alignment.

Moreover, given the fact that the study in this master thesis is based on an intensive literature study and as this research project is restricted to time limitation, and this work is devoted only to a subset of the SAM model developed by Henderson and Venkatraman in 1993 [Henderson and Venkatraman, 1991 & 1993] that represented in the external components of the SAM model, there are issues regarding the generalization of the results that need a broad and an intensive research study to all the different components of the model together and how they interrelate to each others from different perspectives which are very important and interesting subject in business-IT strategic alignment that need more time for study and investigation.

A potential further empirical research study in strategic alignment and performance in the four perspectives of the strategic alignment with specific implications for guiding management practices in this important field will give much deep knowledge, and better understanding to the subject, and contribute to the literature on strategic IT management that will provide further insights into the performance implications of the business-IT strategic alignment both in theory and practice.

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